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McCOY HALL,

A BUILDING DEVOTED TO THE LIBRARIES AND CLASS ROOMS IN LANGUAGES, HISTORY AND PHILOSOPHY.

SO NAMED IN HONOR OF JOHN W. McCOY OF BALTIMORE.

CONTENTS.

This Circular is especially devoted to an account of McCoy Hall, the new academic building of the University. It contains *A Description of the Hall* by the Architects, Messrs. BALDWIN AND PENNINGTON, An *Address* by Professor WILLIAM HAND BROWNE, and a *Poem* by RICHARD BURTON.

This Circular also contains Scientific Notes:—by CHARLES W. L. JOHNSON on *Pseudo-Satellites of Jupiter in the Seventeenth Century*, by A. S. CHESSIN on *Relative Motion*, and a review of Mr. GOTO'S recent work on the *Trematodes of Japan*.

A list of *Recent Publications* by members of the University in the departments of Mathematics, Physics, Astronomy, Chemistry, Geology, Biology, and Philology is given in continuation, in part, of the sections of the *Bibliographia Hopkinsiensis*.

The *Enumeration of Classes* and the *Schedule of Hours for Lectures, etc.*, for the current half-year is printed.

A letter from Professor CRAIG speaking of the *Visit of the late Professor Cayley to Baltimore*, in 1882; a report of the proceedings at the recent meetings of the Baltimore Society of the Archaeological Institute of America, and of the several University Societies, with current notes, are also given.

McCOY HALL in the Johns Hopkins University is designed primarily for lecture-rooms, class-rooms and seminary-rooms, which may be used by the professors and students in all branches of literature and history. Here, also, for the present, is placed the library, and there is an assembly-room which will hold nearly a thousand persons. The University had already its laboratories devoted to Chemistry, Physics, Biology, Pathology, Geology and Mineralogy, but it wanted suitable rooms for the prosecution of those studies which depend upon books. The bequest of the late John W. McCoy, who, from the beginning of the University showed his interest in its welfare, enabled the Trustees to construct the large building which bears his name, and perpetuates his generosity.

The building is now complete and furnished, and every room in it is occupied. The time is therefore appropriate for printing the Architects' report upon the construction, and with that paper, an account of the proceedings when the hall was opened. One of the two principal addresses at that time was given by Walter H. Page, Esq., of New York, one of the original board of Fellows, selected in 1876. He was then a resident of North Carolina, and he is now the editor of *The Forum*. The address was not written out, and it is not possible to reproduce it in this place. The other address by Professor W. Hand Browne, and the poem, by Dr. Richard Burton, are here given.

I.

A DESCRIPTION OF McCOY HALL.

BY THE ARCHITECTS; MESSRS. BALDWIN & PENNINGTON,

BALTIMORE, *December 20th*, 1894.

TO THE PRESIDENT OF THE JOHNS HOPKINS UNIVERSITY:—

Dear Sir:—With the close of the year 1894, we hand to the Building Committee our final report upon the erection and construction of the new McCoy Hall building, recently completed for the Johns Hopkins University.

The new building as it now stands is 96 feet wide on Mouument Street extending 176 feet southward on Little Garden Street, with a front of 112 feet on Ross Street, adjoining and connecting with Levering Hall, which extends 80 feet more to Eutaw Street, thus giving a very imposing appearance, from the southeast corner, extending the full block north and west. It covers 16,896 square feet and with Levering Hall combined, covers 20,616 square feet.

The outside of the building is finished with sand bricks, and trimmed with brown sandstone for the principal bands, sills, and some ornamented features, to give a desired relief and contrast to the otherwise plain and simple treatment of the exterior.

The two principal entrances on Monument and Ross Streets are made special features of the design, the archways of same are emphasized by use of stone for the ornamented parts—these features projecting from the building and extending above the roof lines sufficiently high to be used for clock towers and such purposes of observation as you may need—the main cornice is of copper, which for the purpose is as durable as the stone and harmonises with it in color.

While the general design is not confined to any special style of architecture, the outlines are simple, following nearer the Renaissance style, with some feeling of the Romanesque in the enrichments.

The character of construction throughout is plain, simple and substantial; the brick walls are specially thick giving a stiffness and solidity to the building specially desirable, preventing vibrations.

The floors are supported by beams, instead of joists, using what is termed "Slow burning construction," and the floors are of four thicknesses with counterceiling to deaden as far as practicable, the noises.

All the interior supporting points of floors, &c., extending to the library, and all girders, are of iron, thus giving ample strength and preventing as far as possible, the shrinkage so common to large timber construction. Additional strength and stiffness is provided in the library floor, where the iron girders have additional iron beams the entire length of the room, thus giving iron floor supports, extending each way from wall to wall.

All the partitions which are not of brick are of solid terra cotta blocks, making both the floors and partitions solid, thus not having air spaces, reduces considerably the chances of rapid combustion in case of fire. As an additional precaution the floors of the first story corridor, over the boilers and fuel chambers, as also over the record room, are constructed on fireproof arches, so that in the boiler room there is no contact with woodwork, all of which was done at an additional cost. This fire-proofing is what is called the Golding system, the first of the kind used in this city, and erected by the "Southern Expanded Metal Company."

The building has been arranged as far as practicable to meet the many different requirements, and with this object in view, we have endeavored to give air and light throughout, the ceilings being of ample height. Basement 12 feet, first floor 19 feet, second floor 16 feet 3 inches, third floor 15 feet 2 inches, fourth floor 15 feet, except the library which is 28 feet high; large and ample corridors connect the two ends of the building. This is specially noticeable on the first floor where the corridor 20 feet wide extends the entire length of building with a cross corridor 35 feet well lighted from skylights and windows on the main stairway, which is arranged with double flights 10 feet wide, giving on the first floor an ample lobby of 4225 square feet, which is specially convenient for large gatherings. Into this lobby the large assembly hall 70 feet 6 inches by 80 feet 6 inches opens, with wide doors on two sides, giving ample facility for a moving or circulating gathering. While this room was not designed for an auditorium, the acoustic properties are specially good. Adjoining this hall is the Board room, President's private room and office.

There are two ample stairways—one in each end of the building—from cellar to top, the south one being in a small offset of the building, closing in the space adjoining the Levering Hall and giving access to same on two floors, which adds greatly to the convenience of the use of both buildings.

While the first floor of the building covers the entire lot, at second floor level the west wall is set back, forming a large area for light and air, in case the property to the west should be built up.

The large library, 72 feet 6 inches by 103 feet, being on the fourth floor, is free from noise and well lighted on three sides, and from skylights in the ceiling; in this room is a large brick and stone fireplace and mantel, arranged with panels on which you propose to engrave names of donors to the Library. The building is equipped with two of the latest types of the Sprague-Electric passenger elevators, capable of carrying twenty or more persons in each car. This equipment we think is specially fortunate. These elevators, with those in the new Merchants National Bank Building, were contracted for together, and are the first of the kind erected outside of New York City. They were selected after a most careful examination made by both mechanical and electrical engineers, besides being recommended in the highest degree by the Postal Telegraph Company's officers, they having these elevators in satisfactory service in the new Postal Building, Broadway, N. Y. Mr. F. J. Sprague, the inventor, is well known, and his interest in the University is such that he has donated to the University one-third the cost of these machines. We think the elevators fully justify the merits claimed for them.

The building is heated throughout by direct steam radiation, excepting the Board room and President's offices, where the indirect system is used.

In connection with the heating boilers, a Harrison safety boiler is set up in this building and connected under Monument Street for supplying steam for use in the physical laboratory, for running engine and heating purposes.

This work has been done by The Wells and Newton Company, who have erected some of the most successful work in the country.

The building is equipped throughout for both gas and electric lighting, and is amply provided on all floors with plumbing fixtures, all of which has been done in a most careful manner by Messrs. G. W. Walther and Company, who have also manufactured in this city the gas and electric fixtures throughout the building.

Tinting of walls has been done by Geo. J. Roche and Son.

The entire work of the general construction of the building, as erected by Messrs. Walsh, has been done in a careful and skillful manner, and we think reflects considerable credit on the contractors.

We do not give you here a general description of the large number and arrangement of the various rooms and apartments of the building, but have prepared plans of each floor which have been framed and hung on the walls of the corridor for reference.

As the erection of this building embraced unusual problems and some difficulties not before undertaken in our city, we feel gratified that the work has been completed within the price estimated by us before starting the work.

When we first considered with you the problem of planning a building to give your desired accommodations, the question of a sufficient site was difficult to determine, until we were satisfied of the practicability of removing from its original location the Levering Hall building. After careful investigation we felt satisfied that this could be successfully accomplished. The design for the present building was finally selected by your Committee, involving the removal of Levering Hall, upon which work our estimate was made as above mentioned. Proposals including this work, were asked for, which resulted in awarding the contract for the entire work to Messrs. P. Walsh and Sons of this city.

This problem of raising a two story brick building 44 feet wide by 80 feet long, about 20 feet in height, turning it around and moving to a new location about 200 feet distant from its old foundation, was necessarily slow, as the greatest care was required to properly care for its two million pounds of weight.

With what skill this was accomplished by Messrs. Spicknall and Binyon, the sub-contractors, the result fully shows, as the Levering Hall now rests on a new foundation more substantial than the old one, and its east wall has an additional support of the west wall of McCoy Hall. As it now stands it is in a more prominent location than before, and if there is any difference, it is more substantial as it now stands.

As your physical laboratory was heated and derived power from the boilers in the cellar of the old Monument Street houses, it was necessary to retain these boilers in use through the first winter of the construction of the new building. This was done without any apparent difficulty, but was a serious cause of delay to the contractor.

The high elevation of the yard levels of the small Eutaw Street houses on the west of the new building, proved to be a continual source of difficulty and trouble, the embankment being some 20 feet high from our cellar floor to the surface of the yards, and the water from the old wells soaking through, caused an unlooked-for delay, difficulty and expense in constructing the west wall. This trouble has been in a great measure cared for by special sewer pipes run to drain the water from some of these to the University's main sewer; this arrangement was made with the owners of the wells giving the most trouble.

Yours very truly,

BALDWIN & PENNINGTON, *Architects*

II.

AN ADDRESS AT THE OPENING OF McCOY HALL, JUNE 14, 1894.

By WILLIAM HAND BROWNE,
Professor of English Literature.

On the occasion of our assembling for the first time in McCoy Hall, it seems appropriate to say a few words about this memorial building: the exigencies which demanded, and the generosity which rendered possible, its erection.

As all present know, by the prudent restriction of its founder, the Johns Hopkins University was forbidden to expend any part of the original endowment in the erection of buildings; so that, to provide itself with the necessary accommodations for its continually increasing needs, it was compelled to use such sums as could be spared from its revenues, or such as it might receive from other sources, not charged with special conditions. Thus, from the architectural, or rather the domiciliary point of view, the growth of the University has resembled that of the mollusk so dear to Maryland hearts, who enlarges his habitation by little and little, in proportion to his necessities and his supply of lime.

Not quite that indeed, for necessities here have always been pressing, and often indeed clamorous, before relief was given. The chemists were pretty early housed; but the biologists had long been crying out before they had a roof that was all their own; the physicists had to thread their way for years through a labyrinth of perplexing corridors and a perilous entanglement of highly-charged conductors, before they were domiciled in their present comfortable and respectable quarters.

There remained, however, two—daughters shall I call them?—two daughters and one handmaid still under the roof that had sheltered their infancy, and those sorely straitened for habitations: History, with her infant, Political Science; the great department of Language and Literature, and the Library.

Victor Hugo, in one of his astonishing displays of special knowledge, has related how certain physical educators placed tender infants in jars of peculiar form, in which they grew, their anatomy perforce taking the form of the rigid envelope. The process of adaptation to environment seems to have been trying to the subjects of the experiment, and but few survived.

The Department of History has passed through a similar experience, but it has not only survived, but, I rejoice to say, has developed an indomitable elasticity which only awaits the breaking of the jar to expand into stately proportions.

As for the Department of Language, I have an impression that it has been sustained through its many trials by a secret hope that if, as in Cordelia's case, its portion was reserved to the last, that portion might haply be "more opulent than her sisters'." For the language-schools were truly children of the dispersion; and like those whose ill-regulated aspirations rendered language-schools necessary—the builders of Babel—were scattered abroad upon the face of the earth.

For the Library, which I will not again call a handmaid, but rather the intellectual commissariat, it partook of both afflictions: it was at once overcrowded and dispersed. And in its case the necessities of growth are even more urgent than in the others; I may say as urgent as in all the others put together. For while other departments grow, each by its own internal development, the library has to proportion itself to all, or there will be symptoms of insufficient nutrition somewhere. In the process and expansion of knowledge, what was once part of the magnificence of monarchs, has come to be a necessity of cultivated life. Chaucer's Clerk of Oxenford had but one ambition: to have

"—— at his beddes heede
Twenty bookes, clad in blak or reede;"—

but his modern representative is but insufficiently supplied, though he has access to twenty thousand. But Chaucer's Clerk wished his books to be

"Of Aristotle and his philosophie,"

which, to the scholar of the fourteenth century, comprised all that was seriously worth knowing in the universe. Five centuries have passed, and every study that Aristotle treated, not to mention others which even his genius had no glimpse of, has now a philosophy all to itself, and a copious literature of its own, to which additions are made every day.

The Library, then, is the natural centre of the University, the hospitable board around which all gather. In this central building it will be placed, and nearest to it will gather those studies which deal more exclusively with books:—the languages, ancient and modern, with history and political science. To adorn it appropriately as a home of books and of students of books, it is proposed to place on its walls, or in other appropriate situations, memorials of eminent scholars and men of letters: portraits, busts, autographs, manuscripts: all those things which help to make the past a living present to us, and link together the fleeting generations.

That the University is able to do this now, it owes to the bounty of one who but lately was one of our fellow-citizens—John W. McCoy. This is not the proper occasion to recapitulate the events of his life, nor his services to his fellow-citizens, nor his generous encouragement of struggling genius; the facts are known to all whom I address. Possessed of a fortune—not large as fortunes are estimated now-a-days, but ample for the indulgence of refined taste, and the exercise of judicious benevolence, he collected a library, not large in numbers, but precious in quality. It consisted of two parts: the books which he loved to read—those friendly books which a man makes his companions—and his collection of works illustrating art.

All who knew Mr. McCoy knew that he was a great reader, but not all knew how richly his mind was stored, nor the tenacity of his memory. To cite a single instance: on a certain occasion, in a group of friends, a question arose as to a line in *Tam O'Shanter*. Mr. McCoy said nothing until he was referred to, when he repeated the whole poem from memory. His love of art was as genuine and as sincere as his love of literature. He never posed as a great connoisseur, or talked oracularly of "the correggiosity of Correggio," but his critical perception which enabled him to see the gleam of genius in crude and tentative work was, I am told, almost unerring.

This discriminating judgment guided him in the formation of his precious collection of works illustrating the great schools and the history of art, many of which are among the most splendid and the rarest specimens of printers' and engravers' skill. In forming this collection he had a definite object in view. He intended that it should be kept together after his death, and placed where future generations might profit by it. By will he left this collection to this University, and it will be appropriately housed in the hall which bears his name, and kept together as the McCoy Collection.

Mr. McCoy, as one who was strongly in sympathy with all movements tending to enlighten, refine and liberalize the mind, as well as with everything that promoted the welfare of his native city, watched with double interest the growth of this University, and at his death made it his residuary legatee. It was thought that no better use could be found for the fund thus placed at the disposal of the trustees than to employ it in the erection of a hall which should at once carry out the donor's wishes and perpetuate his name. And in a suitable central position there will be placed a memorial tablet inscribed—

JOHN WILLIAMSON McCOY,
WHOSE BEQUEST THIS HALL COMMEMORATES,
WAS BORN IN BALTIMORE,
APRIL 2, 1821,
AND DIED IN BALTIMORE,
AUGUST 20, 1889.
LIVING, HE ENCOURAGED CHARITIES, LITERATURE AND ART;
DYING, HE GAVE LIBERALLY TO THE
JOHNS HOPKINS UNIVERSITY,
THAT SUCCESSIVE GENERATIONS
MIGHT BE AIDED IN THE PURSUIT OF KNOWLEDGE.

III.

A POEM, PRONOUNCED AT THE OPENING OF McCOY HALL, JUNE 14, 1894.

By RICHARD BURTON, PH. D.,
Of Hartford, Conn.

I.

The murmurous Past is rich in memories,
And we are rich as heirs of After-time:
Far-reaching thoughts, brain-wildering dreams are these
That flock to meet our rhyme,
Whenso we dare to image forth the truth:
How man has clambered up by claw and tooth
Toward his Fate Sublime;
A vast innumerous moaning,
A whole creation groaning,
To bring about his ultimate enthroning.

Back in those primal spaces, chaos kept
High carnival, a welter of wrecked world;
God's mood was mystic and the Spirit slept,
Its mighty wings upfurled,
While Force alone envisaged Earth and Air,
Mad dance of errant atoms everywhere:
No ray of hope empearled
That sea of brute endeavor,
Which seemed it would dissever
Each spright from each, forever and forever.

But hush, like to a dove upon the waste
Descends a spirit; nay, from out the womb
Of blind mechanic motion, all ungraced
By beauty, springs a bloom
Of Thought and Feeling, child of ancient days,
To spin immortal strands through mortal ways,
Upon Time's tireless loom.
Ages and eons blended
In one long throe, that ended
In such sweet birth, such issue sure and splendid.

And so our human history begins:
From motion, mind, and out of anguish, art:
Thro' all the cycles of our glories, sins
And strenuous toils, lo, heart
Is sister to the sturdy brother, brain:
They twain urge on the world thro' Peace and Pain,
To never more dispart.
Science and Song betoken
This Kinship, e'er unbroken,
By God conceived, and by the centuries spoken.
Knowledge the root, and art the gorgeous flower:
Time's richest hour
Is hers, Song crowning Science as the grass
Mantles the earth's rich mold whereon men pass
To all imaginable joys of June.

II.

With souls attune,
We come to dedicate
This house, this goodly Temple built with hands;
Hither shall flock from far, uncounted lands,
Be it soon or late,
Those whom the grave humanities allure,
And those whose hearts are pure
Because they worship Beauty, deem that she
By book and canvas or through melody,
Must still maintain her old imperious rule, must aye endure.
This is the place for Thought, transpierced with Life
Through passion, love, and with desire rife;
Truth-loving Science, like a very Queen,
Here has had demesne,
And many are the meeds before her laid;
Now, unafraid,
Behold the Beautiful uplifts a shrine;
Here let the symbols of the search divine,
The hunger after loveliness, the thirst
For keen creative rapture, be the first
To catch the eye and keep the brooding mind:
Art should not lag behind,
Nor Beauty bow her starry-cinctured head,
As one discomfited.
Delvers in Science, yours to probe the old;
Search out the methods deep and manifold
Whereby the ape has grown to human kin:
Your cunning, too, must bore within
The bowels of the earth, must sift the air
And query of the planets; 'tis your care
To make the pathway of the present plain,
That man may arm-in-arm with Nature grow,
And so attain
His full unfolding with the pregnant years:
But, ah! man is but midway: dim, remote,
Hinted in the thrush's throat,
And making sacrosanct our human tears,
Is something better, brighter, beautifuller far
Than man-made wisdoms, yea than song or star;
Toward this the artist yearns; for him the ape
Will somehow, somewhere take on angel shape,
So says his seership:
Oh, thou Stately Hall,
Stand here and shelter Aspiration's quest;
Watch o'er thy books and foster here the blest
And fruitful interchange of speech; and ne'er
Forget thy meaning and thy mission fair:
To make thought luminous with soul, whose wings,
Above the certitudes of visual things,
Dilate with the eternal; ne'er forget
That brain alone is barren: wedded to
Sky-soaring great emotions, it can do,
And will do yet,
Such deeds as speak the archetypal soul,
Imagination speeding to the goal,
While thought makes smooth the ever-upward way.
To-day,
Oh hall, oh home for dreams
Out-topping wake-time powers, meseems
Thou givest new pledge and noble to this young
And strong foundation, whose good fame is flung
Across the sequent girdles of the earth;
And to this seemly city of thy birth,
To this, as well, thou art a welcome sight,
A tower of inward might
So well as outward semblance: now, ye both,
Take it, and be not loath
To use it as is meet, that ye and we
May know our University
Not honored merely for her learned mien,
But bland with graces, sweet with heartsome hope,
For lyric impulse pleasant to be seen,
Her scope
Bridging not earth alone, but heaven as well;
So, true to Science and Song, Life's two-fold miracle.

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SCIENTIFIC NOTES.

Pseudo-Satellites of Jupiter in the Seventeenth Century. By Charles W. L. Johnson.

[Reprinted, with notes, from *Nature*, London, January 17, 1895. Read before the University Scientific Association.]

In the New York *Nation* for January 11, 1894, President Gilman called attention to an interesting letter from John Winthrop, Jr., Governor of Connecticut (1657–1676)[1] to Sir Robert Moray,[2] concerning the satellites of Jupiter. In this letter, which was written from Hartford, on January 27, 166⅘, Winthrop described an observation of Jupiter which he had made on the night of the previous 6th of August (August 16, 1664, new style), on which occasion he had very distinctly seen five satellites about that planet. He was naturally "not with out some consideration whether that fifth might not be some fixt star with which Jupiter might at that tyme be in neare conjunction," and expressed the wish that more frequent observations might be made upon that planet with a view to ascertaining whether it is not impossible to discern a fixed star when it is so near to the planet as to appear "within the periphery of that single *intuitus* by a tube which taketh in the body of Jupiter," and if so, whether his star is not a new satellite. He further proceeds: "I am bold the rather to mention this as an inquiry whether any such number of Satellites or moons hath beene seene by your honor or Mr. Rooke[3] or any mathematitians or other gentlemen that have good tubes and often have the curiosity to view the planet, for possibly it may be new to me which hath beene more usually knowne by others, though the notion of such a thinge is not new to my selfe, for I remember I mett with the like narration many years since in a little booke intituled Philosophia Naturalis per Joh. Phociliden, though then I thought that was but a mistake of some fixed starrs." Now that Professor Barnard has discovered a genuine fifth satellite of Jupiter after the lapse of nearly three centuries since Galileo's telescope detected the Medicean stars, a greater interest is given to those imaginary satellites which from time to time have claimed a place in the solar system. In a paper in the *Circular* for last May (referred to in *Nature*, Vol. L., No. 1283, p. 113), Mr. Frank H. Clutz gave a probable identification of Winthrop's supposed satellite with B. A. C. 6448. In a postscript to his article it was pointed out that the work to which Winthrop refers is presumably the "Philosophia Naturalis, seu Physica Vetus-Nova" of Johann Fokkens (born at Holwarden in Friesland in 1618; died at Franeker, February 19, 1651). At President Gilman's suggestion, I followed up this clue, and succeeded in examining the work in question.[4] I found that it contains more than a casual reference to additional satellites of Jupiter; in fact a whole chapter is devoted to a discussion of certain observations which seem to be sufficiently interesting to deserve a brief notice.

Phocylides' treatise was published at Franeker[1] in 1651, shortly after the death of the author. On the title-page it is described as written "Ab Eximio Viro | Joh. Phocylide Holwarda | L. AM. Med. Doct. & Philosophiæ, | dum viveret, Profess. Ordinario." There is also a portrait. The third of the three parts into which the book is divided is entitled "Physica Cœlestis," and it is doubtless this portion of the Philosophia which Winthrop had in mind when writing his letter to Sir Robert Moray. It is not Phocylides himself who claims to have discovered new moons of Jupiter, nor does he believe in their existence. On the contrary he treats the supposed observations with the severest disapprobation; and while in general he is enthusiastic over the revelations which the telescope had already made and was daily making, this particular discovery, which he regards as spurious, rouses him to the most strenuous exertions in order to effect its refutation. The discoverer, by name Antonius Maria Schyrleus de Rheita, stated that he had seen, not one, but five new satellites of Jupiter, all farther removed from the planet than the four Galilean moons, and revolving in a contrary direction. Phocylides' account of the matter may be briefly summarised as follows: First he refers to five stars near a certain known star of the fourth magnitude. They are "intra duodecimum & decimum quintum Piscium gradum" (p. 205) "versus sinistram secundum Signorum successionem." (p. 205 and p. 284).

These stars, he continues, have given rise to no little controversy among learned and experienced astronomers (astrophilos), whether they are fixed stars or erratic, and, more particularly, whether they are companions (commilitones) of Jupiter. The discussion of this point is then postponed. Chapter XVI. treats of the number of the planets and their division in kind. Both satellites and planets proper are included in the term "planetæ." After rejecting the sun from his ancient place among the seven planets, and adding to their number the two *laterones* about Saturn and the four about Jupiter, discovered in the "current century by the aid of new and admirable instruments, such as Tubi Optici, specula, and others of the same sort," he adds the Earth to the twelve hitherto obtained. It is thus certain, he says, that there are at least thirteen planets, since it is not yet known whether Mars, Venus, and Mercury have any *laterones* revolving about them. "But as to the other five circum-joviales which P. Anton. Mar. de Rheitâ boasts that he has observed and called Urban Octavianæ, learned men are justly in doubt whether they should be referred to the fixed or to the wandering stars." Nothing further is added at this place, but he proceeds to divide the thirteen planets into primary and secondary. The former (six in number) are named in order from Mercury to Saturn, with the Earth in the Sun's former place. The latter are Saturn's two, and Jupiter's four satellites. The seventh is the Moon. Anyone who doubts this, he adds, will be convinced by what is soon to be said, as well as by the considerations contained in the chapter "De Lunæ corpore & motu." After several interesting chapters, including one on Saturn and his laterones, and another on Jupiter and the Medicean stars, we come to Chapter XXI., entitled "De Pseudo-Jovialibus: & priorum consectaria." Phocylides' attitude is at once disclosed. He refers to the pseudo-discoverer as "quidam Antonius Maria de Rheita, (homo in Papatu arrogans, invidus, judicio præceps & fatuus, aliorum gloriam pro propriâ injustè & cum pudoris oblivione captans & vindicans)."

The discovery was alleged to have been made at Cologne near the end of the year 1642, and was announced in a letter to Puteanus. But it so happened that Hevelius had noticed and described these very stars several months previously. His observations were made in August, 1642, and the succeeding months, and Phocylides regards the claims of Rheita to have been the first to discover them as "fœtidum mendacium," as, by his own admission, he did not observe them before the end of the year. The identity of Rheita's pseudo-joviales with these fixed stars is shown by a comparison of the actual positions of Jupiter on the dates when the observations were made. Our author points out that on December 29, the day of Rheita's

[1] Winthrop was born at Groton, Suffolk, England, in 1606, was educated at Bury St. Edmund's School and at Trinity College, Dublin, and studied law at the Inner Temple, London. He was one of the first members of the Royal Society. He came to America in 1631.

[2] For an account of the life of Sir Robert Moray or Murray, see the *Dictionary of National Biography*, Vol. XXXIX, p. 461. He was born before 1620 and died July 4, 1673. He was a founder of the Royal Society, and presided from May, 1661, to July, 1662. He is mentioned in Pepys's Diary, II., 84 (1850 edition), as "an excellent man of reason and learning, engaged in chemical pursuits." He was knighted by Charles I. in 1643.

[3] Lawreuce Rooke, the astronomer, is referred to. In 1652 he was appointed Gresham Professor of Astronomy. Subsequently he exchanged this chair for that of Geometry, though he continued to be chiefly engaged in astronomical studies. He was intimately connected with the founding of the Royal Society, and several of his papers appear in the Philosophical Transactions. His death, which occurred in 1662, cut short certain observations on the satellites of Jupiter in which he was deeply interested, and which he requested the Society to continue. In the Proceedings of the Massachusetts Historical Society for October, 1892, Rooke's death is wrongly alluded to as occurring "some years later" than 1665, the date of Gov. Winthrop's letter, but see Aikin's Biography, VIII, p. 621; Rose's Gen. Biog. Dict., XI, p. 383. Since the Governor's letter gives no indication that he knew that Rooke had died several years before the observations at Hartford were made, the possibility suggests itself that Robert Hooke (1635–1703) is intended. Hooke became Professor of Geometry in Gresham College in 1665. He had been appointed curator of experiments to the Royal Society in 1662 on Sir Robert Moray's recommendation, and held the office till his death. He was Secretary to the Society for five years from 1677.

[4] The copy I used is in the University Library at Cambridge, England, and is bound up with two other works by Phocylides. The volume belongs to a valuable private collection of books on Logic, recently presented to the Library by Dr. Venn, of Corpus Christi College. I am indebted to Dr. Glaisher, of Trinity College, for the opportunity of making a close examination of this rare treatise.

[1] The University of Franeker was founded in 1585, and was abolished by Napoleon I. It had a fine observatory. The town is ten miles west of Leeuwarden.

discovery, Jupiter occupied the same position as on the previous 4th of September, when Hevelius observed him and noticed the five stars. This position is defined by Phocylides in the words, "decimo tertio gradu Piscium, cum quindecem minutis." Again, Hevelius saw Jupiter on August 28 "in decimo quarto gradu Piscium, cum quindecem minutis," where Rheita observed him on January 4 of the following year (1643). The new circum-joviales are then, says Phocylides, none other than the stars recently discovered in Aquarius. They do not move around Jupiter, as they would do if they were secondary planets, and are therefore fixed stars, "manebuntque [fixæ] usque ad sæculi consummationem." They were observed by Hevelius to remain stationary, while Jupiter left them behind him. Phocylides challenges any doubter to look for these stars himself, when all five will be found in their original position and at the same distances one from another. He concludes with the words (p. 289): "Hallucinatur itaque crassè, & inani nimis gloriolâ Rheita se ipsum titillat."

The following will throw further light on Rheita's tendency to form hasty conclusions. According to Phocylides he declared that he had observed three of the Medicean stars to be in a straight line, but the fourth "tantam obtinuisse latitudinem, quae, si ex centro Jovis Eccentricum ad illum excurrentem metiamur, ad quindecem gradus excrescat." This, says our author, is contradictory to the observations of all "mathematicians," who unanimously agree that the Medicean stars never recede from Jupiter in latitude more than three minutes, whether to the north or to the south. He then states that this fourth star, so far from being a true Galilean satellite, was not even a pseudo-jovial, but another fixed star. Gassendi observed the satellites on the same night, and saw all four in a straight line, the second slightly to the north; but they were differently disposed with regard to Jupiter. In all probability, Phocylides concludes, the first (innermost) satellite was obscured by the planet, if, as is likely, the observations were not made at precisely the same hour; for Jovial Mercury (as he is called) runs his course around Jupiter in a few hours more than a whole day. Phocylides supposes that, as Rheita was well aware that there were four satellites, he mistook this fixed star for the fourth satellite.

The existence of Rheita's new satellites was opposed by Gassendi in his "Judicium de novem stellis circa Jovem visis" (see Delambre, "Hist. de l'Ast. Mod.," ii. p. 351), and by Hevelius in his "Selenographia," (*ib.* p. 437). Lobkowitzius defended Rheita against Gassendi (Phocylides, p. 295). Delambre devotes several pages to Rheita or Schyrle, and gives some account of his work "Oculus Enoch et Eliæ, sive Radius sidereomysticus," Antwerp, 1645. In this book, according to Delambre, he admits that he has not succeeded in observiog his satellites again, but asserts anew that he noticed changes in their mutual distances. He explains their disappearance by connecting them with variable stars, which he supposes to have large orbits and long revolutions. He believed, moreover, that the spots of the suns were planets, and that the sun itself rotated but once in a year.

Phocylides also mentions circum-martiales and circum-saturnales, which, no less than the circum-joviales, must he held to be fixed stars.

It will thus be seen that Winthrop was right in remembering Phocylides' treatise as a work in which the discovery of new satellites was mentioned. But apparently he did not remember very accurately the position assumed by the author, for the book contains hut little to encourage an observer in the belief that he has discovered new satellites.

It is perhaps worth noticing that the Philosophia was published less than fourteen years before the date of Winthrop's letter; it must therefore have been quite a new book when Winthrop perused it, as he says, "many years since."

Note on Relative Motion. By A. S. Chessin.

The motion of a body on the surface of the earth may be considered either relatively to the earth, or in absolute space. More generally, suppose a space (R) moves in another space (A), as the earth moves in the absolute; we may consider the motion of a body either in the space (A) or relatively to the space (R). In the first case the motion will be called *absolute*, in the second—*relative*. The motion of the space (R) in the space (A) will be called *space motion*.

Suppose (R) remains immovable in the space (A). Then the motion of a body relatively to (R) will be the same as its motion in (A), *i. e.*, the relative and the absolute motions will be identical. If, now, the space (R) begins to move, the motion of the body relatively to (R) will differ from its motion in (A), *i. e.*, the relative and the absolute motions will differ. *The space motion*, therefore, *can be considered as a perturbation of that motion of the body, which it would have, if* (R) *remained immovable in* (A). The motion of the body relatively to (R), in the hypothesis of the immobility of (R) in (A), will be the *undisturbed motion* of the body, and its relative motion, when (R) is moving in (A), may be considered as the *disturbed motion*.

Suppose a dynamical problem can be solved completely, if no account is taken of space motion. To obtain the relative motion with regard to the space (R) when it is moving, we must determine the disturbing forces arising from the space motion, or introduce what will be called *the perturbative function of relative motion*. For example, suppose that the motion of a body, or of a system of bodies, is considered on the surface of the earth, and that certain problems connected with this motion can be solved completely in the supposition that the earth is immovable in space. To obtain the solution of the same problems, but this time taking into account the rotation of the earth about its axis, only certain disturbing forces need to be introduced, arising from this rotation.

I give in the following some general expressions for the perturbative function of relative motion as defined above. They are extracted from a work which will be published later.

Let $q_1, q_2 \ldots, q_k$ be the indepeudent Lagrangian parametric coördinates, which define the relative position of a body or system of bodies; k, the number of degrees of freedom; $p_e = \frac{\partial T}{\partial q_e'}$ for $e = 1, 2, \ldots, k$; T, the relative kinetic energy of the body or system of bodies; x_i, y_i, z_i, the cartesian coördinates of a point (i) of the body or system of bodies relatively to the space (R); m_i, the mass of this point, where i has any of the values $1, 2, \ldots, n$; further let $\phi_1 = 0, \phi_2 = 0, \ldots, \phi_s = 0$ be the equations of constraint, including the geometrical conditions to which the body or system of bodies are subject; $s = 3n - k$; moreover, let

$$K = - M\dot{w}_0 r_c \cos(\dot{\widehat{w}_0, r_c})$$

where M is the mass of the body or system of bodies; r_c the radius vector from the origin (0) of relative coördinates to the centre of inertia of the body or of the system of bodies; $\dot{w}_0$, the acceleration of the origin (0) in absolute space; further, let

$$L = \omega \boldsymbol{M}_0 \cos(\widehat{\omega, \boldsymbol{M}_0})$$

where ω is the angular velocity of space rotation; $\boldsymbol{M}_0$, the principal moment of relative momentum of the body or system of bodies, with regard to the origin (0); let also G be the kinetic energy of space rotation, *i. e.*

$$G = \tfrac{1}{2} \sum_{i=1}^{i=n} m_i [(qz_i - ry_i)^2 + (rx_i - pz_i)^2 + (py_i - qx_i)^2],$$

p, q, r being the components of ω in the system of axes (x, y, z). For a solid body

$$G = \tfrac{1}{2} \boldsymbol{I}\omega^2,$$

where $\boldsymbol{I}$ is the moment of inertia of the body relatively to the axis ω at the time considered. Then the perturbative function of relative motion Ω will have the form:

$$\Omega = - (K + L + G_1)$$

where

$$G_1 = G - \tfrac{1}{2} \sum_{\mu=1}^{\mu=k} \frac{\partial L}{\partial q'_\mu} \frac{\partial L}{\partial p_\mu}$$

G_1 is the kinetic energy of space rotation around those axes, about which the relative rotation of the body or system of bodies is impossible on account of the conditions of constraint, including the geometrical conditions to which the system is subject.

This result is important. It follows from it:

1) that if the body or system of bodies are subject to neither geometrical conditions, nor conditions of constraint $G_1 = 0$ and therefore

$$\Omega = - (K + L)$$

2) that G_1 can be expressed explicitly in function of $\phi_1, \phi_2, \ldots, \phi_s$. In fact I found for G_1 the expression

$$G_1 = \tfrac{1}{2} \sum_{\mu=1}^{\mu=5} \sum_{\nu=1}^{\nu=5} L_\mu L_\nu \Phi_{\mu\nu}$$

where the letters L_μ, L_ν, $\Phi_{\mu\nu}$, have a different meaning according to whether we have a system of material points, a solid body, or a system of bodies.

a) For a system of material points:[1]

$$L_\mu = \sum_{i=1}^{i=3n} \frac{\partial L}{\partial u'_i} \frac{\partial \phi_\mu}{\partial u_i}$$

where u_i denotes any one of the quantities,

$$x_1\sqrt{m_1};\ y_1\sqrt{m_1};\ z_1\sqrt{m_1};\ \ldots\ldots;\ x_i\sqrt{m_i};\ y_i\sqrt{m_i};\ z_i\sqrt{m_i};\ \ldots\ldots$$
$$\ldots\ldots;\ x_n\sqrt{m_n};\ y_n\sqrt{m_n};\ z_n\sqrt{m_n}.$$

Furthermore,

$$\Phi_{\mu,\nu} = \frac{\partial \lg \Phi}{\partial \phi_{\mu,\nu}} = \frac{\partial \lg \Phi}{\partial \phi_{\nu,\mu}} = \Phi_{\nu,\mu}$$

$$\Phi = \begin{vmatrix} \phi_{11} & \phi_{12} & \ldots & \phi_{1s} \\ \phi_{21} & \phi_{22} & \ldots & \phi_{2s} \\ \ldots & \ldots & \ldots & \ldots \\ \ldots & \ldots & \ldots & \ldots \\ \phi_{s1} & \phi_{s2} & \ldots & \phi_{ss} \end{vmatrix}$$

$$\phi_{\kappa,\epsilon} = \phi_{\epsilon,\kappa} = \sum_{i=1}^{i=3n} \frac{\partial \phi_\kappa}{\partial u_i} \frac{\partial \phi_\epsilon}{\partial u_i}.$$

b) For a rigid body:

Let $u_1, u_2, \ldots, u_6$ be the six coördinates which define the relative position of a rigid system. Then

$$\frac{\partial T}{\partial u_i'} = \sum_{j=1}^{j=6} \mu_{i,j}\, u_j'$$

where the coefficients $\mu_{i,j}$ depend on the special choice of coördinates. Let further,

$$M = \begin{vmatrix} \mu_{11}, & \mu_{12}, & \mu_{13}, & \mu_{14}, & \mu_{15}, & \mu_{16} \\ \ldots & \ldots & \ldots & \ldots & \ldots & \ldots \\ \ldots & \ldots & \ldots & \ldots & \ldots & \ldots \\ \mu_{61}, & \ldots & \ldots & \ldots & \ldots & , \mu_{66} \end{vmatrix}$$

$$M_{i,j} = M_{j,i} = \frac{\partial \lg M}{\partial \mu_{ij}} = \frac{\partial \lg M}{\partial \mu_{j,i}}$$

$$\phi_{\mu,\nu} = \phi_{\nu,\mu} = \sum_i \sum_j M_{ij} \frac{\partial \phi_\mu}{\partial u_i} \frac{\partial \phi_\nu}{\partial u_j}$$

$$\Phi = \begin{vmatrix} \phi_{11} & \phi_{12} & \ldots & \phi_{15} \\ \ldots & \ldots & \ldots & \ldots \\ \ldots & \ldots & \ldots & \ldots \\ \phi_{51} & \phi_{52} & \ldots & \phi_{55} \end{vmatrix}$$

Then

$$\Phi_{\mu,\nu} = \Phi_{\nu,\mu} = \frac{\partial \lg \Phi}{\partial \phi_{\mu,\nu}} = \frac{\partial \lg \Phi}{\partial \phi_{\nu,\mu}}$$

$$L_\mu = \sum_i \sum_j M_{ij} \frac{\partial L}{\partial u'_i} \frac{\partial \phi_\mu}{\partial u_j}$$

[1] I had originally given another form to the formulas for this case. The present form is introduced after a suggestion of Mr. D. Bobyleff, of the University of St. Petersbourg.

c) For a system of rigid bodies:

The formulas are analogous to those in case (*b*), only instead of six coördinates we shall have $6n$, n being the number of bodies.

A Review of Studies on the Ectoparasitic Trematodes of Japan.

By Seitaro Goto, *Rigakushi*. (Published by the Imperial University, Tōkyō, Japan, 1894.)

(Reprinted from *Nature*, London, January 10, 1895.)

This memoir extends to 275 pages, and is illustrated by twenty-seven plates. The species on which these studies were made were for the most part collected by the author himself from various parts of the Japanese coast, between the years 1889 and 1892. For the present he omits the Gyrodactylidae, as his investigations of the anatomy of this group are not yet completed. After a brief introduction, in which the method of preparation is described, the details of the anatomy of the several systems, as met with among the species of the ten genera found in Japan, are given; this is followed by some notes on the habitat, powers of locomotion, food and coloration of the several forms, and then we have the systematic portion. By far greater numbers of the species were found attached to the gills of fishes, but several live in their oral cavity, and some even on the outer surface of their bodies. In one remarkable instance, that of *Tristomum biparasiticum*, the worm was found always attached to the carapace of a copepod, itself a parasitic on the gills of *Thynnus albacora*. The "looping" movements observed by Haswell have been often witnessed by Goto; sometimes they are performed so rapidly in succession as almost to escape observation; lateral movements in some instances were noticed. Whilst the greater number feed on the mucous slime of their hosts, some are undoubtedly blood-suckers. In the systematic description, attention is drawn to the important specific characters to be found in the "hooks" which are often present, near the posterior end of the body. Thirty species belonging to the following ten genera are fully described: Microcotyle, Axine, Octocotyle, Diclidophora, Hexacotyle, Onchocotyle, Calicotyle, Monocotyle, Epibdella, and Tristomum. While none of the genera are new, some of them have emended diagnoses, and the information about the various species included in each is brought wonderfully up to date. Of the thirty species, all are described as new; one, *Diclidophora smaris*, was found in the mouth cavity of *Smaris vulgaris*, taken in the Bay of Naples; all the rest are from Japan.

Owing to the often very imperfect descriptions given by previous describers of species, it is possible that some of those described by Goto may on further investigation rank as synonyms, but most of them are strikingly distinctive forms. *Octocotyle*, Diesing, and *Diclidophora*, Diesing, have been combined by many in the genus Octobothrium, F. S. Leuckart; but the author gives good reasons why Diesing's genera should be retained, characterizing the former genus anew.

The author's drawings have been beautifully lithographed; all the plates have been executed at Japan, and will bear comparison with any similar work done in Europe. A very complete bibliography of the literature cited is appended. We venture to suggest, that it is a duty of all biologists to send copies of their published writings to the Library of the Imperial University of Japan, where they will be used and appreciated.

The AMERICAN CHEMICAL JOURNAL, Volume XVII, No. 3, issued March 1, 1895, contains papers as follows:

Contributions from the Chemical Laboratory of Harvard College:
On the Cupriammonium Double Salts. By Theodore William Richards and Andrew Henderson Whitridge.
The Composition of Athenian Pottery. By Theodore William Richards.
A Redetermination of the Atomic Weight of Yttrium. By Harry C. Jones.
Contribution from the Chemical Laboratory of the University of Michigan:
Separation of Nickel and Iron. By E. D. Campbell and W. H. Andrews.
Researches on the Complex Inorganic Acids. By Wolcott Gibbs.
Contribution from the Chemical Laboratory of Dartmouth College:
Cupric Hydride. By Edwin J. Bartlett and Walter H. Merrill.
Contribution from the Laboratory of the University of California:
Action of Light on Lead Bromide. By R. S. Norris.
Contributions from the Chemical Laboratory of Purdue University:
The Action of Ammonia upon Dextrose. By W. E. Stone.
The Carbohydrates of the Gum of Acacia Decurrens. By W. E. Stone.
Reviews and Reports and Notes.

This journal appears ten times yearly. Subscription, $4.00 a year.

RECENT PUBLICATIONS.

SUPPLEMENTARY TO THE BIBLIOGRAPHIA HOPKINSIENSIS.

The following list enumerates publications, within the past year, in the departments named, by those who are now or who have been members of this University. It is printed for the information of their colleagues and friends and is not supposed to be complete. The last similar list is given in *University Circulars, No.* 109. For the sake of completeness, titles of papers, not in the departments named, are in some cases given.

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Of the New Polychrome Edition of the Old Testament, edited by Professor Haupt, three parts are now ready as follows:—

Part 3: **Leviticus**, by Prof. S. R. Driver (and Rev. H. A. White), Oxford. 32 pp. quarto, printed in two colors. Price 75 cents.

Part 8: **Samuel**, by Prof. K. Budde, Strassburg. English Translation of the Notes by Rev. B. W. Bacon, Oswego, N. Y. 100 pp. quarto, printed in eight colors. Price $2.00.

Part 17: **Job**, by Prof. C. Siegfried, Jena. English Translation of the Notes by Prof. R. E. Brünnow, of the University of Heidelberg. 50 pages, quarto, printed in three colors. Price, $1.00.

The following parts are in press and will soon appear:—

Part 6: **Joshua**, by Prof. W. H. Bennett, London.

Part 11: **Jeremiah**, by Prof. C. H. Cornill, Königsberg. English Translation of the Notes by Dr. C. Johnston, Johns Hopkins University, Baltimore, Md.

Part 12: **Ezekiel**, by Prof. C. H. Toy, Harvard University, Cambridge, Mass.

Part 14: **Psalms**, by Prof. J. Wellhausen, Göttingen. English Translation of the Notes by Prof. J. D. Prince, of the University of the City of New York.

Orders should be addressed to

The Johns Hopkins Press, Baltimore.

ENUMERATION OF CLASSES, SECOND HALF-YEAR, 1894-95.

Mathematics and Astronomy. (109 Students).

Classes meet in the Physical Laboratory.

Mathematical Seminary: Professor CRAIG. Wednesday and Friday, 9 a. m. (12).

Comstock.	Harrison.	Morris.	Sayre.
Duvall, C. R.	Johnson, E. H.	Pattillo.	Taliaferro.
Eiesland.	Maltbie, W. H.	de Saussure.	Wilson, A. H.

Elliptic Functions: Professor CRAIG. Monday, Tuesday, and Thursday, 9 a. m. (10).

Comstock.	Johnson, E. H.	de Saussure.	Taliaferro.
Duvall, C. R.	Morris.	Sayre.	Wilson, A. H.
Eiesland.	Pattillo.		

Lines Traced on Surfaces: Professor CRAIG. Monday, Tuesday, and Thursday, 10 a. m. (5).

Duvall, C. R.	Pattillo.	Sayre.	Taliaferro.
Eiesland.			

Theory of Invariants: Professor FRANKLIN. Wednesday and Thursday, 11 a. m. (10).

Comstock.	Johnson, E. H.	de Saussure.	Taliaferro.
Duvall, C. R.	Morris.	Sayre.	Wilson, A. H.
Eiesland.	Pattillo.		

Theory of Functions: (*Elementary Course*): Professor FRANKLIN. Monday and Tuesday, 11 a. m. (15).

Arnold, B. W.	Harrison.	Penniman.	Wilson, A. H.
Carmichael.	Johnson, E. H.	Ramm.	Wolff.
Comstock.	McClain.	Tillman.	Zahm.
Douglas.	More, L. T.	Uhler.	

Partial Differential Equations of the Second Order: Dr. CHESSIN. Wednesday, Thursday, and Friday, 12 m. (8).

Carmichael.	Comstock.	Harrison.	Schenck, C. C.
Clutz.	Eiesland.	de Saussure.	Ramm.

Surfaces and Twisted Curves: Dr. HULBURT. Monday, Tuesday, and Wednesday, 10 a. m. (4).

Comstock.	McClain.	Morris.	Uhler.

Theory of Equations; Analytic Geometry: (*Major Course*): Dr. HULBURT. Daily, except Monday, 9 a. m. (26).

Atkinson.	Ebaugh.	Knight.	Northrup.
Aull.	Gallaudet.	Lacy.	Rothermel.
Binswanger.	Gassman.	Lanahan.	Stevens, A. R.
Borger, R. L.	Hardy.	Mallory.	Waidner.
Dickerman.	Harry.	Mather.	Wallis.
Diehl.	Humphreys, W. J.	Mohler.	Whitaker.
Droke.	Kessler.		

Differential Equations: Dr. HULBURT. Monday, 9 a. m., Thursday, 12 m. (27).

Ball, W. D.	Gordon.	Kessler.	Reeder.
Borger, R. L.	Hardy.	Mallory.	Schwab.
Corbin.	Harriman.	Mather.	Singewald.
Dentsch.	Harry.	McCaskell.	Tillman.
Douglas.	Hill, M. W.	Mohler.	Waidner.
Droke.	Hodges, G. H.	Peirce.	Waring.
Eisenbrandt.	Humphreys, W. J.	Powell.	

Differential and Integral Calculus: (*Minor Course*): Professor FRANKLIN. Daily, except Friday, 1 p. m. (39).

Adams, H. H.	Gorsuch.	Lyon, C. E.	Searles.
Atkinson.	Grosvenor.	Machen.	Smith, W. A.
Aull.	Hancock.	Marine.	Spencer, C.
Baetjer.	Heald.	Naylor.	Stephens, J. C.
Bartell.	Henderson.	Nyce.	Uhlig.
Brian, J. M.	Hodges, W. L.	Olson.	Upshur.
Clarke, G. M.	Keidel, F. B.	Phelps.	Weglein.
Cooke.	Kershner.	Redfield.	Wilson, H. M.
Davis, M. B.	Lackey.	Reese.	Zuebert.
Edmunds.	Lawson.	Reid, E. E.	

Analytic Geometry: (*Elementary Course*): Mr. ROSZEL. Monday and Wednesday, 2 p. m., Friday, 12 m. (12).

Burt.	Harvey.	Killmon.	Stanley.
Gardner.	Harwood.	Levy, W. S.	Sellhausen.
Guggenheimer.	Jones, A. D.	Radcliffe.	Warfield, L. M.

Astronomical Seminary: Dr. POOR. Wednesday, 5 p. m. (10).

Clutz.	Droke.	Hoffman, S. V.	Waidner.
Comstock.	Ebaugh.	Roszel.	Wilson, A. H.
Dickerman.	Harrison.		

Advanced Theoretical Astronomy: Dr. POOR. Wednesday, Thursday, and Friday, 9 a. m. (3).

Clutz.	Harrison.	Roszel.

Theoretical and Practical Astronomy: Dr. POOR. Thursday and Friday, 10 a. m. (10).

Atkinson.	Droke.	Sayre.	Waidner.
Comstock.	Mallory.	Uhler.	Wilson, A. H.
Dickerman.	Mohler.		

Celestial Mechanics: Dr. CHESSIN. Wednesday, Thursday, and Friday, 11 a. m. (2).

Clutz.	Roszel.

Descriptive Astronomy: (*Undergraduate Course*): Dr. POOR. Thursday, 12 m., Friday, 1 p. m. (2).

James, G. O.	Whitaker.

Observatory Work: Dr. POOR. Daily, 8 p. m. (16).

Atkinson.	Droke.	Johnson, T. W.	Tillman.
Clutz.	Ebaugh.	Mallory.	Uhler.
Comstock.	Harrison.	Mohler.	Waidner.
Dickerman.	Hoffman, S. V.	Sayre.	Wilson, A. H.

Physics. (133 Students).

Classes meet in the Physical Laboratory.

Electricity and Magnetism: Professor ROWLAND. Daily, except Wednesday, 10 a. m. (24).

Ball, W. D.	Hill, G. H.	Northrup.	Rothermel.
Brackett.	Johnson, T. W.	Penniman.	de Saussure.
Carmichael.	Jones, H. C.	Ramm.	Schenck, C. C.
Dorsey, N. E.	Mather.	Reid, H. F.	Tatnall.
Gallaudet.	Maynard.	Reutlinger.	Wilcox.
Harrison.	More.	Ridgely.	Zahm.

Journal Meeting: Professor ROWLAND and Dr. AMES. Wednesday, 11 a. m. (25).

Bliss.	Harrison.	Mohler.	Rothermel.
Carmichael.	Humphreys, W. J.	More.	Schenck, C. C.
Day, W. S.	Johnson, T. W.	Northrup.	Tatnall.
Dorsey, N. E.	Jones, H. C.	Penniman.	Uhler.
Douglas.	Lewis, E. P.	Ramm.	Wolff.
Gallaudet.	Mather.	Reid, H. F.	Zahm.
Hardy.			

Physical Seminary: Dr. AMES. Saturday, 9 a. m. (15).

Bliss.	Harrison.	Mohler.	Schenck, C. C.
Carmichael.	Humphreys, W. J.	More.	Tatnall.
Day, W. S.	Johnson, T. W.	Northrup.	Wolff.
Dorsey, N. E.	Lewis, E. P.	Ramm.	

Hydrodynamics and Sound: Dr. AMES. Thursday and Friday, 11 a. m. (21).

Carmichael.	Humphreys, W. J.	Northrup.	Tatnall.
Dorsey, N. E.	Johnson, T. W.	Penniman.	Tillman.
Douglas.	Mather.	Ramm.	Uhler.
Gallaudet.	Mohler.	Rothermel.	Waidner.
Hardy.	More.	Schenck, C. C.	Zahm.
Harrison.			

General Physics: (*Major Course*): Dr. AMES. Daily, except Thursday, 12 m. (44).

Atkins.	Gordon.	Maynard.	Reeder.
Atkinson, T. W.	Grosvenor.	McCaskell.	Reid, E. E.
Aull.	Hardy.	McClain.	Rogers.
Ball, W. D.	Harriman.	Mohler.	Schwab.
Clark, C. B.	Hill, M. W.	Morris.	Singewald.
Corbin.	Hodges, G. H.	Olson.	Smith, W. A.
Deutsch.	Humphreys, W. J.	Orbin.	Thomas, J. H.
Dickerman.	James, G. O.	Pattillo.	Tillman.
Douglas.	Kessler.	Penniman.	Waidner.
Eisenbrandt.	Mallory.	Pindell.	Waring.
Frazer, H. M.	Mather.	Powell.	Waters.

General Physics: (*Minor Course*): Dr. AMES. Daily, except Tuesday, 10 a. m. (59).

Adams, E. M.	Gorsuch.	Nelson.	Stevens, A. R.
Alleman.	Graham.	Phelps.	Stover.
Armstrong, J. R. C.	Hendrickson.	Ragland.	Uhlig.
Bartell.	Hodges, W. L.	Redfield.	Underhill.
Belknap.	Kaufman, H. M.	Reese.	Ver Planck.
Binswanger.	Keidel, F. B.	Rosenheim.	Wallis.
Brian, J. M.	Kershner.	Rusk.	Warfield, L. M.
Brown, L.	Knight, C. H.	Searles.	Wegleio.
Burt.	Lackey.	Shuter.	West, J. M.
Carroll, A. H.	Lacy.	Siemons.	Whitaker.
Caspari.	Lanahan.	Sohon.	Williams, W. W.
Cissel.	Longcope.	Spencer, C.	Wilson, H. M.
Connaway.	Magruder, E. W.	Spragins.	Wiune.
Diehl.	Marine.	Steinfeld.	Znebart.
Gassman.	Naylor.	Stephens, J. C.	

Applied Electricity: (*Second Year*): Dr. DUNCAN. Tuesday and Thursday, 9 a. m. (14).

Atkins.	Carmichael.	Mullen.	Rogers.
Ball, W. D.	Gallaudet.	Reutlinger.	Rothermel.
Brackett.	Hill, G. H.	Ridgely.	Wilcox.
Branch, B. H.	McIver.		

Applied Electricity: (*First Year*): Dr. DUNCAN. Wednesday and Friday, 9 a. m. (23).

Atkins.	Eisenbrandt.	Maynard.	Reutlinger.
Ball, W. D.	Frazer, H. M.	McCaskell.	Rogers.
Brackett.	Gordon.	Orbin.	Schwab.
Branch, B. H.	Harriman.	Peirce.	Singewald.
Corbin.	Hill, M. W.	Powell.	Waring.
Deutsch.	Hodges, G. H.	Reeder.	

Electrical Measurements: Mr. HERING. Thursday and Friday, 11 a. m. (17).

Corbin.	Harriman.	McCaskell.	Reeder.
Deutsch.	Hill, M. W.	Orbin.	Schwab.
Eisenbrandt.	Hodges, G. H.	Peirce.	Singewald.
Frazer, H. M.	Maynard.	Powell.	Waring.
Gordon.			

Steam and Hydraulic Engineering: Mr. HERING and Mr. GEER. Daily, except Wednesday, 11 a. m. (11).

Brackett.	Hill, G. H.	Reutlinger.	Rothermel.
Branch, B. H.	McIver.	Ridgely.	Wilcox.
Gallaudet.	Mulleo.	Rogers.	

Machine Design: Mr. GEER. Monday and Tuesday, 11 a. m. (17).

Corbin.	Harriman.	McCaskell.	Rogers.
Deutsch.	Hill, M. W.	Peirce.	Schwab.
Eisenbrandt.	Hodges, G. H.	Powell.	Singewald.
Frazer, H. M.	Maynard.	Reeder.	Waring.
Gordon.			

Electrical Seminary: Dr. DUNCAN, Mr. HERING, and Mr. GEER. Wednesday, 10 a. m. (30).

Atkins.	Gallaudet.	McIver.	Ridgely.
Ball, W. D.	Gordon.	Mullen.	Rogers.
Brackett.	Harriman.	Orbin.	Rothermel.
Branch, B. H.	Hill, G. H.	Peirce.	Schwab.
Corbin.	Hill, M. W.	Powell.	Singewald.
Deutsch.	Hodges, G. H.	Reeder.	Waring.
Eisenbrandt.	Maynard.	Reutlinger.	Wilcox.
Frazer, H. M.	McCaskell.		

Laboratory Work: Professor ROWLAND, Dr. DUNCAN, Dr. AMES, Mr. HERING, and Mr. GEER. Daily, 9 a. m. to 5 p. m. (132).

Adams, E. M.	Gallaudet.	McClain.	Shuter.
Alleman.	Gassman.	McIver.	Singewald.
Armstrong, J. R. C.	Gordon.	Mohler.	Slemons.
Atkins.	Gorsuch.	More.	Smith, W. A.
Atkinson, T. W.	Graham.	Morris.	Sohon.
Aull.	Grosvenor.	Mullen.	Spencer, C.
Ball, W. D.	Hardy.	Naylor.	Spragins.
Bartell.	Harriman.	Northrup.	Steinfeld.
Belknap.	Harrison.	Olsen.	Stephens, J. C.
Binswanger.	Hendrickson.	Orbin.	Stevens, A. R.
Bliss.	Hill, G. H.	Pattillo.	Stover.
Brackett.	Hill, M. W.	Peirce.	Tatnall.
Branch, B. H.	Hodges, G. H.	Penniman.	Thomas, J. H.
Brian, J. M.	Hodges, W. L.	Phelps.	Tillman.
Brown, L.	Humphreys, W. J.	Pindell.	Ubler.
Burt.	James, G. O.	Powell.	Ublig.
Carmichael.	Johnson, T. W.	Ragland.	Underhill.
Carroll, A. H.	Kaufman, H. M.	Ramm.	Ver Planck.
Caspari.	Keidel, F. B.	Redfield.	Waidner.
Chowning.	Kershner.	Reeder.	Wallis.
Cissel.	Kessler.	Reese.	Warfield, L. M.
Clark, C. B.	Knight, C. H.	Reid, E. E.	Waring.
Connaway.	Lackey.	Reid, H. F.	Waters.
Corbin.	Lacy.	Reutlinger.	Weglein.
Day, W. S.	Lanahan.	Ridgely.	West, J. M.
Deutsch.	Lewis, E. P.	Rogers.	Whitaker.
Dickerman.	Longcope.	Rosenheim.	Wilcox.
Diehl.	Magruder, E. W.	Rothermel.	Williams, W. W.
Dorsey, N. E.	Mallory.	Rusk.	Wilson, H. M.
Douglas.	Marine.	de Saussure.	Winne.
Eisenbrandt.	Mather.	Schwab.	Wolff.
Frazer, H. M.	Maynard.	Schenck, C. C.	Zahm.
Fulton.	McCaskell.	Searles.	Zuebert.

Electro-chemistry: Dr. H. C. JONES. Wednesday and Thursday, 4 p. m., Hopkins Hall. (*About twenty lectures.*) (50).

Atkins.	Grosvenor.	McKee.	Reutlinger.
Atkinson.	Harriman.	McKenzie.	Ridgely.
Ball, W. D.	Highee.	Mohler.	Rogers.
Base.	Hill, G. H.	Muckenfuss.	Schwab.
Brackett.	Hill, M. W.	Mullen.	Smith, E. S.
Branch, B. H.	Hodges, G. H.	Newell.	Singewald.
Carmichael.	Hollis.	Norris.	Sohon.
Chambers.	Humphreys, W. J.	Orbin.	Stoddard.
Corbin.	Mackay.	Pierce.	Tatnall.
Deutsch.	Mather.	Powell.	Tillman.
Eisenbrandt.	Maynard.	Ramm.	Waidner.
Frazer, H. M.	McCaskell.	Reeder.	Wiegand.
Gordon.	McIver.		

Chemistry. (115 Students).

Classes meet in the Chemical Laboratory, unless otherwise stated.

Compounds of Carbon: (*For Graduate Students only*): Professor REMSEN. Daily, except Monday, 9 a. m. (32).

Alleman.	Fay.	Mackay.	Reid, E. E.
Base.	Grosvenor.	Magruder, E. W.	Smith, E. S.
Bromwell.	Henderson.	McKee.	Smith, W. A.
Chamberlain.	Highee.	McKenzie.	Sohon.
Chambers.	Hollis.	Muckenfuss.	Stoddard.
Connaway.	Hunter.	Newell.	Stover.
Crane.	Karslake.	Norris.	Van Cleve.
Douglas.	Lawson.	Ragland.	Zimmele.

Journal Meeting: Professor REMSEN. Saturday, 9 to 10.30 a. m. (33). The Instructors in Chemistry, the Fellows by Courtesy, and the following students:

Alleman.	Grosvenor.	Lawson.	Newell.
Base.	Henderson.	Mackay.	Norris.
Bromwell.	Highee.	Magruder, E. W.	Smith, E. S.
Chambers.	Hollis.	McKee.	Sohon.
Crane.	Hunter.	McKenzie.	Stoddard.
Fay.	Karslake.	Muckenfuss.	Stover.
Griffin, J. J.			

Analytical Chemistry: (*Special Topics*): Professor MORSE. Monday, 9 a. m. (29).

Alleman.	Henderson.	Magruder, E. W.	Ragland.
Base.	Higbee.	McKee.	Smith, E. S.
Bromwell.	Hollis.	McKenzie.	Smith, W. A.
Chamberlain.	Hunter.	Muckenfuss.	Sohon.
Chambers.	Karslake.	Newell.	Stoddard.
Crane.	Lawson.	Norris.	Stover.
Griffin, J. J.	Mackay.	Olson.	Van Cleve.
Grosvenor.			

Organic Chemistry: (*Major Course*): Professor MORSE. Daily, except Monday, 9 a. m. (15).

Beatty.	Graham.	Johnson, F. H.	Torrence.
Gallagher.	Hendrickson.	Parker, H. P.	

In addition, the following graduate students attend the *lectures* of the Major Course.

Berger, E. W.	Cissel.	Fulton.	Olson.
Chowning.	Cooke.	King.	Post.

General Chemistry: (*Minor Course*): Professor RENOUF and Dr. RANDALL. Daily, except Monday, 9 a. m., Hopkins Hall. (64).

Adams, E. M.	Davis, M. B.	Lehr.	Shuter.
Adams, H. H.	Edmunds.	Lilly.	Slemons.
Armstrong, J. R. C.	Foster, R. C.	Longcope.	Smith, G. O.
Baetjer.	Gantz.	Macheo.	Spencer, C.
Ballagh, W. W.	Gorsuch.	Naylor.	Steinfeld.
Bansemer.	Greenbaum.	Nelson.	Stephens, J. C.
Bartell.	Hancock.	Nyce.	Tillman.
Belknap.	Harvey.	Parker, J. D.	Underhill.
Black.	Heald.	Phelps.	Vocke.
Brian, J. M.	Hodges, W. L.	Pindell.	Warfield, L. M.
Brown, G. D.	James, G. O.	Reese.	Weglein.
Carroll, A. H.	Kaufman, H. M.	Remsen, I., Jr.	Welbourn.
Caspari.	Keidel, F. B.	Ritchie.	West, J. M.
Clark, C. B.	Kershner.	Robinson, J. A.	Wilson, H. M.
Clark, C. C.	Kurrelmeyer.	Searles	Winne.
Coblens.	Lackey.	Shaw.	Zuebert.

Laboratory Work: Professor REMSEN, Professor MORSE, Professor RENOUF, Dr. RANDALL, Dr. GILPIN. Daily, 9 a. m. to 5 p. m. (112).

Adams, E. M.	Edmunds.	King.	Reid, E. E.
Adams, H. H.	Fay.	Knight, N.	Remsen, I., Jr.
Alleman.	Foster, R. C.	Kurrelmeyer.	Ritchie.
Armstrong, J. R. C.	Fulton.	Lackey.	Robinson, J. A.
Baetjer.	Gallagher.	Lawson.	Searles.
Ballagh, W. W.	Gantz.	Lehr.	Shaw.
Bansemer.	Gorsuch.	Lilly.	Shuter.
Bartell.	Graham.	Longcope.	Slemons.
Base.	Greenbaum.	Macheo.	Smith, E. S.
Beatty.	Griffin, J. J.	Mackay.	Smith, W. A.
Belknap.	Grosvenor.	Magruder, E. W.	Sohon.
Berger, E. W.	Hancock.	Mather.	Spencer, C.
Black.	Harvey.	McKee.	Steinfeld.
Brian, J. M.	Heald.	McKenzie.	Stephens, J. C.
Bromwell.	Henderson.	Muckenfuss.	Stoddard.
Brown, G. D.	Hendrickson.	Naylor.	Stover.
Carroll, A. H.	Highee.	Nelson.	Tillman.
Caspari.	Hodges, W. L.	Newell.	Torrence.
Chamberlain.	Hollis.	Norris.	Underhill.
Chambers.	Humphreys, W.	Nyce.	Van Cleve.
Chowning.	Hunter. J.	Olson.	Vocke.
Cissel.	James, G. O.	Parker, H. P.	Warfield, L. M.
Clark, C. B.	Johnson, F. H.	Parker, J. D.	Weglein.
Clark, C. C.	Jones, H. C.	Phelps.	Welbourn.
Coblens.	Karslake.	Pindell.	West, J. M.
Cooke.	Kaufman, H. M.	Post.	Wilson, H. M.
Crane.	Keidel, F. B.	Ragland.	Winne.
Davis, M. B.	Kershner.	Reese.	Zuebert.

Geology and Mineralogy. (26 Students).

Classes meet in the Geological Laboratory.

General Geology: Professor CLARK and Dr. MATHEWS. Monday and Wednesday, 12 m., and laboratory work, Wednesday, 2–5 p. m. (22).

Bagg.	Gray, G. H.	Ragland.	Smith, W. A.
Beyer.	Hollis.	Roberts.	Sohon.
Brown, L.	Knight, C. H.	Shattuck.	Spencer, A. C.
Cissel.	Lacy.	Smith, E. S.	Stoddard.
Crane.	Prindle.	Smith, G. O.	Walker, J. B.
Gane.	Post.		

Physiographic Geology: Mr. GILBERT. Tuesday and Thursday, 12 m., until March 1. (25).

Bagg.	Hollis.	Prindle.	Smith, G. O.
Beyer.	King.	Ragland.	Smith, W. A.
Brown, L.	Knight, C. H.	Reid, H. F.	Sohon.
Cissel.	Lacy.	Roberts.	Spencer, A. C.
Crane.	Mathews.	Shattuck.	Stoddard.
Gane.	Post.	Smith, E. S.	Walker, J. B.
Gray, G. H.			

Stratigraphic and Structural Geology: Mr. WILLIS. Tuesday and Thursday, 12 m., after March 1.

Vertebrate Palaeontology: Professor CLARK. Monday, Tuesday, and Wednesday, 9 a. m., until March 15. (8).

Bagg.	Gane.	Roberts.	Smith, G. O.
Beyer.	Prindle.	Shattuck.	Spencer, A. C.

Palaeontology: (*Laboratory Work*): Professor CLARK. Daily, 9 a. m. to 5 p. m. (8).

Bagg.	Gane.	Roberts.	Smith, G. O.
Beyer.	Prindle.	Shattuck.	Spencer, A. C.

Petrography: Dr. MATHEWS. Monday, Tuesday, and Wednesday, 11 a. m. (8).

Bagg.	Hollis.	Roberts.	Smith, G. O.
Beyer.	Prindle.	Shattuck.	Spencer, A. C.

Microscopic Petrography: (*Laboratory Work*): Dr. MATHEWS. Daily, 9 a. m. to 5 p. m. (8).

Bagg.	Hollis.	Roberts.	Smith, G. O.
Beyer.	Prindle.	Shattuck.	Spencer, A. C.

Journal Club: Professor CLARK and Dr. MATHEWS. Saturday, 12 m. (8).

Bagg.	Gane.	Roberts.	Smith, G. O.
Beyer.	Prindle.	Shattuck.	Spencer, A. C.

Biology. (50 Students).

Classes meet in the Biological Laboratory.

Principles of Zoology: Professor BROOKS. Monday, Tuesday and Wednesday, 2 p. m., after April 1. (13).

Clark, H. L.	Hunt, R.	Lamb.	Shields.
Conant.	Johnson, D. S.	Lefevre, G.	Sigerfoos.
Drew.	Knower.	Richardson.	Wilson, C. B.
Goto.			

Zoological Seminary: Professor BROOKS. Friday, 12 m. (14).

Clark, H. L.	Humphrey, J. E.	Lamb.	Shields.
Conant.	Hunt, R.	Lefevre, G.	Sigerfoos.
Drew.	Johnson, D. S.	Richardson.	Wilson, C. B.
Goto.	Knower.		

Morphological Journal Club: Professor BROOKS. Monday, 12 m. (16).

Andrews.	Goto.	Knower.	Richardson.
Clark, H. L.	Humphrey, J. E.	Lamb.	Shields.
Conant.	Hunt, R.	Lefevre, G.	Sigerfoos.
Drew.	Johnson, D. S.	Lotsy.	Wilson, C. B.

Physiological Seminary: Professor HOWELL. Monday, 9. a. m. (10).

Clark, H. L.	Drew.	Hunt, R.	Shields.
Conant.	Dreyer.	Kemp.	Wilson, C. B.
Connaway.	Goto.		

Physiological Journal Club: Professor HOWELL. Monday, 10 a. m. (11).

Clark, H. L.	Drew.	Hunt, R.	Shields.
Conant.	Dreyer.	Kemp.	Wilson, C. B.
Connaway.	Goto.	Lamb.	

Animal Physiology: Professor HOWELL. Thursday and Friday, until March 15; daily after March 15, 11 a. m. First year medical students and the following graduate students of the university:

Clark, H. L.	Goto.	Lamb.	Shields.
Conant.	Hunt, R. D.	Richardson.	Wilson, C. B.
Connaway.	Kemp.		

Elements of Zoology: Professor BROOKS. Daily, except Monday, 9 a. m., until April 1. (18).

Brown, L.	James, C. B.	Rusk.	Sudler.
Buckler.	Magruder, E. P.	Smith, H. M.	Walker, J. B.
Clark, H. L.	Pleasants.	Strobel.	Williams, W. W.
Conant.	Richardson.	Sigerfoos.	Wilson, C. B.
Gray, G. H.	Rosenheim.		

Comparative Embryology: Dr. ANDREWS. Daily, except Monday, 9 a. m., after April 1. (Same students as in Elements of Zoölogy.)

General Biology: Dr. ANDREWS. Thursday and Friday, 10 a. m. (25).

Barr, H. E.	Fulton.	Kennard.	Smith, H. M.
Beatty.	Gallagher.	Knipp.	Spencer, A. C.
Bentley.	Gardner.	Oliver.	Sudler.
Berger, E. W.	James, C. B.	Poetter.	Walker, J. B.
Bowlus.	Johnson, D. S.	Schunck.	Watkins.
Boyer.	Johnson, F. H.	Shattuck.	Wilson, C. B.
Chowning.			

Osteology: Dr. ANDREWS. Monday and Wednesday, 10 a. m., until April 15. (24).

Barr, H. E.	Conant.	Johnson, F. H.	Shattuck.
Beatty.	Fulton.	Kennard.	Smith, H. M.
Berger, E. W.	Gallagher.	Knipp.	Spencer, A. C.
Bowlus.	Gardner.	Oliver.	Sudler.
Boyer.	James, C. B.	Poetter.	Watkins.
Chowning.	Johnson, D. S.	Schunck.	Wilson, C. B.

Elements of Botany: Dr. BARTON. Monday and Wednesday, 10 a. m., after April 15. (Same students as in Osteology.)

Botany: (*Morphology of Reproduction*): Dr. LOTSY. Tuesday, Wednesday, Thursday, 12 m. (6).

Clark, H. L.	Drew.	Johnson, D. S.	Richardson.
Conant.	Goto.		

Histology and Cryptogamic Botany: Dr. LOTSY. Thursday and Friday, 9 a. m.–12 m. and 2–5 p. m. (5).

Clark, H. L.	Drew.	Richardson.	Goto.
Conant.			

Laboratory Work: Professor BROOKS, Professor HOWELL, Dr. ANDREWS, Dr. DREYER, and Dr. LOTSY. Daily, 9 a. m. to 5 p. m. (48).

Barr, H. E.	Drew.	Kennard.	Schunck.
Beatty.	Fulton.	Knipp.	Shattuck.
Bentley.	Gallagher.	Knower.	Shields.
Berger, E. W.	Gardner.	Lamb.	Sigerfoos.
Bowlus.	Goto.	Lefevre, G.	Smith, H. M.
Brown, L.	Gray, G. H.	Magruder, E. P.	Strobel.
Buckler.	Humphrey, J. E.	Oliver.	Spencer, A. C.
Boyer.	Hunt, R.	Pleasants.	Sudler.
Clark, H. L.	James, C. B.	Poetter.	Walker, J. B.
Chowning.	Johnson, D. S.	Richardson.	Watkins.
Conant.	Johnson, F. H.	Rosenheim.	Williams, W. W.
Connaway.	Kemp.	Rusk.	Wilson, C. B.

Greek. (45 Students).

Classes meet in McCoy Hall.

Greek Seminary: (*Aristophanes*): Professor GILDERSLEEVE. Monday and Wednesday, 10 a. m., Room 14. (21).

Bolling.	Gill.	Laing.	Radford.
Cleland.	Green, E. L.	Loug, O. F.	Saffold.
Daniel.	Haggett.	Ness.	Scott.
Findley.	Kennedy.	Penick.	Stratton.
Fogel.	Kirk.	Peppler.	Sutphen.
Gallaway.			

Greek Tragedy: Professor GILDERSLEEVE. Friday, 10 a. m., Room 14. (27).

Bolling.	Green, E. L.	Kirk.	Radford.
Cleland.	Haggett.	Laing.	Saffold.
Daniel.	Hoeing.	Loug, O. F.	Scott.
Findley.	Huey.	Magruder, W. H.	Sparks, C. B.
Fogel.	Johnston, G. W.	Ness.	Stratton.
Gallaway.	Kane.	Penick.	Sutpheu.
Gill.	Kennedy.	Peppler.	

Greek Syntax: Professor GILDERSLEEVE. Thursday, 10 a. m., Room 14. (31).

Bolling.	Gill.	Kirk.	Radford.
Carroll, A. M.	Green, E. L.	Laing.	Saffold.
Cleland.	Haggett.	Land.	Scott.
Daniel.	Hoeing.	Long, O. F.	Sparks, C. B.
Eberth.	Huey.	Magruder, W. H.	Stratton.
Findley.	Johnston, G. W.	Ness.	Sutphen.
Fogel.	Juergeosen.	Penick.	Wilson, H. L.
Gallaway.	Kane.	Peppler.	

Greek Comedy: Professor GILDERSLEEVE. Tuesday, 10 a. m., Room 14. (23).

Bolling.	Gill.	Kirk.	Radford.
Cleland.	Green, E. L.	Laiug.	Saffold.
Daniel.	Haggett.	Long, O. F.	Scott.
Findley.	Huey.	Ness.	Stratton.
Fogel.	Kane.	Penick.	Sutphen.
Gallaway.	Kennedy.	Peppler.	

Greek Rhythms and Metres: (*Lectures and Practical Exercises*): Dr. MILLER. Tuesday, 9 a. m., Room 15. (16).

Cleland.	Huey.	Magruder, W. H.	Radford.
Findley.	Kane.	Ness.	Saffold.
Gallaway.	Kirk.	Penick.	Scott.
Haggett.	Long, O. F.	Peppler.	Sutphen.

Aeschylus, *Prometheus;* ***Sophocles,*** *Oedipus Tyrannus:* Dr. SPIEKER. Monday, Tuesday, Wednesday, 12 m., Room 10. (8).

Fogel.	Killmon.	Savage.	Sparks, C. B.
Juergensen.	Land.	Sioussat.	Sumwalt.

Plato, *Apology;* ***Euripides,*** *Iphigenia in Taüris:* Dr. SPIEKER. Tuesday, Wednesday, Thursday, 1 p. m., Room 10. (10).

Gardner.	Kennedy.	Schunck.	Welbourn.
Harwood.	Knipp.	Spragins.	Williams, T. D.
Jewell.	Schulz.		

Prose Composition: Dr. SPIEKER.

Major Course: Friday, 12 m., Room 10. (7).

Fogel.	Land.	Sioussat.	Sumwalt.
Juergensen.	Savage.	Sparks, C. B.	

Minor Course: Monday, 1 p. m., Room 10. (11).

Gardner.	Kennedy.	Schulz.	Welbourn.
Harwood.	Knipp.	Schunck.	Williams, T. D.
Jewell.	Penick.	Spragins.	

Latin. (65 Students).

Classes meet in McCoy Hall.

Latin Seminary: (*Roman Satire*): Professor WARREN. Tuesday and Friday, 11 a. m., Room 15. (27).

Ballard.	Futrall.	Johnston, G. W.	Penick.
Cleland.	Gill.	Juergensen.	Peppler.
Crumley.	Haggett.	Kane.	Saffold.
Daniel.	Hoeing.	Laing.	Scott.
Eberth.	Huey.	Long, O. F.	Sutphen.
Findley.	Jewell.	Magruder, W.H.	Wilson, H. L.
Fogel.	Johnson, W. H.	Ness.	

Petronius; Seneca; Persius: (*Readings*): Professor WARREN. Wednesday, 11 a. m., Room 15. (25).

Ballard.	Futrall.	Johnson, W. H.	Ness.
Cleland.	Gill.	Johnston, G. W.	Penick.
Crumley.	Haggett.	Kane.	Saffold.
Daniel.	Hoeing.	Laing.	Scott.
Eberth.	Huey.	Long, O. F.	Sutphen.
Findley.	Jewell.	Magruder, W.H.	Wilson, H. L.
Fogel.			

Historical Latin Grammar: (*Lectures*): Professor WARREN. Thursday, 11 a. m., Room 15. (27).

Ballard.	Fogel.	Johnson, W. H.	Ness.
Bolling.	Futrall.	Johnston, G. W.	Penick.
Cleland.	Gill.	Kane.	Peppler.
Crumley.	Haggett.	Kirk.	Saffold.
Daniel.	Hoeing.	Laing.	Sutphen.
Eberth.	Huey.	Long, O. F.	Wilson, H. L.
Findley.	Jewell.	Magruder, W.H.	

Journal Club: Professor WARREN. Alternate Wednesdays, 12 m., Room 15. (19).

Ballard.	Gill.	Johnston, G. W.	Ness.
Cleland.	Hoeing.	Kane.	Saffold.
Crumley.	Huey.	Laing.	Sutphen.
Daniel.	Jewell.	Long, O. F.	Wilson, H. L.
Eberth.	Johnson, W. H.	Magruder, W.H.	

Tacitus: Dr. SMITH. Thursday, 12 m., Friday, 1 p. m., Room 10. (10).

Blake.	Killmon.	Poetter.	Sumwalt.
Branch, C. H. H.	Kurrelmeyer.	Rosenbaum.	Watkins.
Brown, G. D.	Luchs.		

Plautus; Terence: Professor WARREN. Wednesday, Thursday, and Friday, 10 a. m., Room 10. (8).

Gantz.	Savage.	Sumwalt.	Welbourn.
Jewell.	Sioussat.	Upshur.	Wilson, H. L.

Horace: Dr. SMITH. Wednesday, Thursday, and Friday, 9 a. m., Room 12. (24).

Blake.	Kalb.	Meyer.	Schunck.
Clarke, G. M.	Knipp.	Radcliffe.	Stanley.
Gardner.	Leary.	Redfield.	Thomson, J. M.
Guggenheimer.	Levy, W. S.	Sellhausen.	Uhlig.
Harwood.	Lyon, C. E.	Spragins.	Ver Planck.
Jenkins.	McComas.	Schulz.	Williams, T. D.

Prose Composition: Dr. SMITH.

Major Course: Monday, 10 a. m., Room 10. (5).

Gantz.	Sumwalt.	Upshur.	Welbourn.
Sioussat.			

Minor Course: Tuesday, 9 a. m., Room 12. (24).

Blake.	Kalb.	Meyer.	Schunck.
Clarke, G. M.	Knipp.	Radcliffe.	Stanley.
Gardner.	Leary.	Redfield.	Thomson, J. M.
Guggenheimer.	Levy, W. S.	Sellhausen.	Uhlig.
Harwood.	Lyon, C. E.	Spragins.	Ver Planck.
Jenkins	McComas.	Schulz.	Williams, T. D.

Sanskrit and Comparative Philology. (48 Students).

Classes meet in McCoy Hall, Room 19.

Comparative Philology: Professor BLOOMFIELD. Monday, 4 p. m. (31).

Barr.	Findley.	Killmon.	Rosenbaum.
Black.	Glen.	Krapp.	Saffold.
Branch, C. H. H.	Griffith.	Kurrelmeyer.	Savage.
Brown, G. D.	Jewell.	Laing.	Sutpheu.
Callahan.	Juergensen.	Ness.	Torsch.
Cleland.	Keidel, G. C.	Penick.	Warfield, F. H.
Collier.	Keunedy.	Poetter.	Watkins.
Eberth.	Key.	Reizenstein.	

Comparative Grammar of Greek, Latin, German, etc.: Professor BLOOMFIELD. Wednesday, 4 p. m. (21).

Ballard.	Haggett.	Kane.	Saffold.
Carroll, A. M.	Hoeing.	Long, O. F.	Scott.
Cleland.	Huey.	Ness.	Stratton.
Crumley.	Jewell.	Peppler.	Sutphen.
Eberth.	Johnston, G. W.	Radford.	Wilson, H. L.
Gallaway.			

Vedic Seminary: (*Literature of the Brāhmaṇas*): Professor BLOOMFIELD. Thursday, 4 p. m. (6).

Kirk.	Ness.	Stratton.	Wilson, H. L.
Levias.	Radford.		

Zend and Zend-Avesta: Professor BLOOMFIELD. Tuesday, 12 m. (3).

Levias.	Stratton.	Wilson, H. L.

Introduction to the Vedic Language: Mr. STRATTON. Monday, 12 m. (3).

Levias.	Ness.	Wilson, H. L.

Elementary Sanskrit: Professor BLOOMFIELD and Mr. STRATTON. Tuesday, 4 p. m., Friday, 12 m. (9).

Crumley.	Huey.	Ness.	Saffold.
Eberth.	Magruder, W. H.	Penick.	Sutpheu.
Findley.			

Oriental Seminary. (34 Students).

Classes meet in McCoy Hall, Room 18, except as otherwise stated.

Elementary Hebrew: *Gesenius-Mitchell's Grammar; Genesis, ed. Baer-Delitzsch*): Dr. JOHNSTON. Tuesday, 1 p. m., Friday, 2 p. m. (7).

Branch, C. H. H.	Hazard.	Luchs.	Thompson, A.H.
Fogel.	James, B. B.	Rosenbaum.	

Hebrew: (*Advanced Course: Critical Interpretation of the Book of Ecclesiastes*): Professor HAUPT. Monday, 3–5 p. m. (15).

Bruneau.	Goodwin.	Levias.	Sparks, C. B.
Caldwell.	Guttmacher.	Levy, C. H.	Tracy.
Fenlou.	Kelly.	Rosenau.	Weaver.
Fletcher.	Land.	Schanfarber.	

Hebrew Prose Composition: (*Translation from English into Hebrew*): Professor HAUPT. Monday, 5 p. m. (9).

Bruneau.	Goodwin.	Land.	Sparks, C. B.
Fenlou.	Kelly.	Levias.	Tracy.
Fletcher.			

Hebrew Exercises: (*Historical Books*): Dr. JOHNSTON. Wednesday, 11 a. m. (6).

Bruneau.	James, B. B.	Land.	Tracy.
Goodwin.	Kelly.		

Hebrew Conversation: Mr. LEVIAS. Wednesday, 4 p. m. (4).

Bruneau.	Caldwell.	Land.	Sparks, C. B.

Post-Biblical Hebrew: (*Aboth de Rabbi Nathan, ed. Schechter*): Mr. LEVIAS. Wednesday, 5 p. m. (8).

Bruneau.	Guttmacher.	Levy, C. H.	Schanfarber.
Fletcher.	Land.	Rosenau.	Tracy.

The Historical Geography of Palestine: (*Lectures*): Dr. JOHNSTON. Tuesday, 5 p. m. (20).

Bruneau.	Kuipp.	Remington.	Sumwalt.
Fogel.	Land.	Rosenau.	Thompson, A. H.
Guttmacher.	Levias.	Rosenbaum.	Ward, G. W.
Hazard.	Mitchell, H. D.	Schmeckebier.	Wilson.
Kennedy.	Mowbray.	Schunck.	Zimmele.

Elementary Assyrian: Dr. JOHNSTON. Friday, 4 p. m. (5).

Bruneau.	Land.	Sparks, C. B.	Tracy.
Kelly.			

Assyrian Exercises: (*Cursory Reading of Abel-Winckler's Chrestomathy*): Dr. JOHNSTON. Friday, 10 a. m. (1).

Levias.

Assyrian Grammar: Professor HAUPT. Wednesday, 3 p. m. (10).

Bruneau.	Land.	Rosenau.	Sparks, C. H.
Fletcher.	Levias.	Schanfarber.	Tracy.
Guttmacher.	Levy, C. H.		

Assyrian Seminary: (*Cuneiform Account of the Deluge*): Professor HAUPT. Tuesday, 7.30–9.30 p. m., 2311 Linden Ave. (10).

Bruneau.	Land.	Rosenau.	Sparks, C. B.
Fletcher.	Levias.	Schanfarber.	Tracy.
Guttmacher.	Levy, C. H.		

Arabic: (*Brünnow's Chrestomathy*): Dr. JOHNSTON. Monday, 2 p. m., Friday, 3 p. m. (11).

Bruneau.	Guttmacher.	Levy, C. H.	Sparks, C. B.
De Haan.	Kelly.	Rosenau.	Tracy.
Fletcher.	Land.	Schanfarber.	

Arabic Exercises: (*Sight Reading*): Dr. JOHNSTON. Friday, 11 a. m. (2).

De Haan.	Levias.

Arabic Exercises: (*Prose Composition*): Mr. LEVIAS. Tuesday, 10 a. m., Friday, 9 a. m. (7).

Bruneau.	Fletcher.	Land.	Tracy.
De Haan.	Guttmacher.	Sparks, C. B.	

Arabic: (*Extracts from Arabic Geographers*): Professor HAUPT. Wednesday, 4 p. m. (12).

Bruneau.	Guttmacher.	Levias.	Schanfarber.
De Haan.	Kelly.	Levy, C. H.	Sparks, C. B.
Fletcher.	Land.	Rosenau.	Tracy.

Arabic Prose Composition: (*Translation from English into Arabic*): Professor HAUPT. Monday, 5.30 p. m. (13).

Bruneau.	Hazard.	Levias.	Schanfarber.
De Haan.	Kelly.	Levy, C. H.	Sparks, C. B.
Fletcher.	Land.	Rosenau.	Tracy.
Guttmacher.			

German. (130 Students).

Classes meet in McCoy Hall.

German Seminary: (*German Literature in the Eighteenth Century*): Professor WOOD. Monday, Tuesday, and Wednesday, 9 a. m., Room 4. (12).

Arnold, H. L.	Becker.	Griffin, N. E.	Miller, C. R.
Baker.	Brush.	Hanssmann.	Schmidt.
Barr, M. L.	Crenshaw.	Krapp.	Woods, C. F.

Old Norse: Professor WOOD. Thursday and Friday, 9 a. m., Room 4. (11).

Baker.	Haussmann.	Ness.	Tupper.
Child.	McBryde, J. M.	Nitze.	Woods, C. F.
Crenshaw.	Miller, C. R.	Schmidt.	

Historical German Grammar: Professor WOOD. Thursday, 10 a. m., Room 3. (5).

Baker.	Miller, C. R.	Schmidt.	Woods, C. F.
Haussmann.			

Germanic Society: Professor WOOD. Alternate Fridays, 8 p. m., Room 4. (12).

Baker.	Crenshaw.	Kinard.	Newell.
Brush.	Faust, A. B.	McBryde, J. M.	Schmidt.
Child.	Haussmann.	Miller, C. R.	Woods, C. F.

Gothic: Professor WOOD. Tuesday and Wednesday, 11 a. m., Room 4. (12).

Arnold, H. L.	Campbell.	Griffin, N. E.	Kinney.
Barr, M. L.	Furst.	Griffith.	Krapp.
Becker.	Glen.	Key.	Miller, C. R.

Old High German: (*Isidor*): Dr. LEARNED. Tuesday, 10 a. m., Room 6, Wednesday, 12 m., Room 12. (6).

Baker.	Haussmann.	Schmidt.	Woods, C. F.
Griffin, N. E.	Miller, C. R.		

Middle High German: Dr. LEARNED. Monday, 9 a. m., Room 6. (9).

Arnold, H. L.	Campbell.	Krapp.	Nitze.
Barr, M. L.	Griffith.	Ness.	Schluegel.
Becker.			

Modern Dutch: Dr. VOS. Monday, 4 p. m., Friday, 3 p. m., Room 8. (3).

Haussmann.	James, B. B.	Schmidt.

(*Major Course*).

Goethe's Faust: Professor WOOD. Wednesday and Friday; ***Geschichte der deutschen Nationallitteratur:*** Dr. VOS. Monday; ***Prose Composition:*** Dr. LEARNED. Thursday, 10 a. m., Room 6. (15).

Arnold, H. L.	Griffin, N. E.	Kinney.	Smith, W. A.
Baetjer.	Hancock.	Krapp.	Vail.
Blake.	Janney.	Kurrelmeyer.	Waters.
Davis, M. B.	Key.	Schulz.	

(*Minor Course A*).

Wilhelm Tell: Dr. LEARNED. Monday and Tuesday; ***Prose Readings:*** Dr. LEARNED. Friday; ***Prose Composition:*** Professor WOOD and Dr. LEARNED. Thursday, 11 a. m., Room 11. (26).

Bowlus.	Johnson, F. H.	Meyer.	Slemons.
Clarke, G. M.	Jones, A. D.	Nelson.	Thomson, J. M.
Davis.	Kaufman, H. M.	Nyce.	Underhill.
Edmunds.	Kennard.	Phelps.	Warfield, L. M.
Gassman.	Leary.	Shaw.	West, J. M.
Graham.	Longcope.	Shuter.	Winne.
Jenkins.	Lyon, C. E.		

(*Minor Course B*).

Storm, *Immensee;* ***Goethe,*** *Egmont:* Dr. VOS. Daily, except Wednesday, 11 a. m., Room 8. (20).

Adams, E. M.	Burt.	Radcliffe.	Sudler.
Adams, H. H.	Drew.	Remsen, I., Jr.	Sumwalt.
Atkins.	Levy, W. S.	Savage.	Thompson, A. H.
Beckwith.	Machen.	Sioussat.	Williams, T. D.
Borger, R. L.	Parker, H. P.	Stanley.	Wilson, C. B.

(*Supplementary Courses*).

Historical German: (***Ribbeck,*** *Sophokles und seine Tragödien*): Dr. VOS. Monday, 5 p. m., Thursday, 12 m., Room 8. (24).

Barr, M. L.	Gill.	Lynes.	Riley.
Black.	Haggett.	Magruder, W. H.	Saffold.
Buckler.	Huey.	Neill.	Strobel.
Cleland.	Johnston, O. M.	Paullin.	Suthpen.
Crumley.	Lewis, W. S.	Penick.	Williams, W. W.
Findley.	Long.	Pleasants.	Wilson, H. L.

Scientific German: (***Kopp,*** *Sonst und Jetzt in der Chemie;* ***Haeckel,*** *Ueber die Entstehung des Menschengeschlechts*): Dr. VOS. Wednesday and Friday, 5 p. m., Room 8. (24).

Allemao.	Douglas.	Karslake.	Shuter.
Aull.	Drew.	Lawson.	Spencer, A. C.
Carmichael.	Ebaugh.	Magruder, E. W.	Stoddard.
Clark, C. B.	Hardy.	Northrup.	Stover.
Clark, H. L.	Henderson.	Rosenheim.	Sudler.
Crane.	Hollis.	Rusk.	Wilson, C. B.

German Conversation: Dr. A. B. FAUST. Wednesday and Thursday, 5 p. m., Room 6. (17).

Bansemer.	Jones, A. D.	Miller, C. R.	Slemons.
Blake.	Longcope.	Muckenfuss.	Smith, H. M.
Campbell.	Mackay.	Newell.	Sudler.
Futrall.	Meyer.	Sellhausen.	Wilson, H. M.
Griffith.			

English. (30 Students).

Classes meet in McCoy Hall.

English Seminary: (*Poetic Literature of the Anglo-Saxons; The Dramatic Works of Dryden*): Professor BRIGHT. Tuesday and Thursday, 3–5 p. m., Room 4. (21).

Arnold, H. L.	Furst.	Kinard.	Schmidt.
Barr, M. L.	Glen.	Kinney.	Shipley.
Becker.	Griffin, N. E.	Krapp.	Sykes, F. H.
Campbell.	Griffith.	Magruder, W. H.	Tupper.
Chandler.	Key.	McBryde, J. M.	West, H. S.
Child.			

English Philology: (*Lectures*): Professor BRIGHT. Wednesday 4 p. m., Room 12. (22).

Arnold, H. L.	Furst.	Kinard.	Schmidt.
Barr, M. L.	Glen.	Kinney.	Shipley.
Becker.	Griffin, N. E.	Krapp.	Sykes, F. H.
Campbell.	Griffith.	McBryde, J. M.	Tupper.
Chandler.	Haussmann.	Magruder, W. H.	West, H. S.
Child.	Key.		

Interpretation of Texts: (The Anglo-Saxon Poems, *Christ and Satan*): Professor BRIGHT. Thursday, 12 m., Room 12. (18).

Arnold, H. L.	Child.	Key.	Magruder, W. H.
Barr, M. L.	Furst.	Kinard.	McBryde, J. M.
Becker.	Glen.	Kenny.	Schmidt.
Campbell.	Griffin, N. E.	Krapp.	Tupper.
Chandler.	Griffith.		

Conferences on the Romanic Elements in English: Professor BRIGHT and Dr. SYKES. Tuesday, 12 m., Room 12. (18).

Arnold, H. L.	Child.	Key.	Magruder, W. H.
Barr, M. L.	Furst.	Kinard.	McBryde, J. M.
Becker.	Glen.	Kinney.	Ogden.
Campbell.	Griffin, N. E.	Krapp.	Tupper.
Chandler.	Griffith.		

Journal Meeting: Professor BRIGHT. Alternate Fridays, 8–10 p. m., Room 4. (22).

Arnold, H. L.	Furst.	Kinard.	Schmidt.
Barr, M. L.	Glen.	Kinney.	Shipley.
Becker.	Griffin, N. E.	Krapp.	Sykes, F. H.
Campbell.	Griffith.	Magruder, W. H.	Tupper.
Chandler.	Haussmann.	McBryde, J. M.	West, H. S.
Child.	Key.		

Anglo-Saxon: (*Major Course*): Professor BRIGHT. Monday and Wednesday, 12 m., Room 8. (6).

Barr, M. L.	Griffin, N. E.	Krapp.	Ogden.
Glen.	Griffith.		

English Literature: (*XVIII Century Drama*): Professor BROWNE. Monday, 11 a. m., Room 6. (8).

Barr, M. L.	Griffith.	Kinard.	McBryde, J. M.
Child.	Key.	Kinney.	Tupper.

Elizabethan Literature; Early Scottish Poetry: (*Major Course*): Professor BROWNE. Thursday and Friday, 11 a. m., Room 6. (5).

Glen.	Key.	Kinney.	Krapp.
Griffin, N. E.			

Early English; English Literature: (*Minor Course*): Professor BROWNE. Daily, except Friday, 1 p. m., Room 8. (7).

Beckwith.	Dorsey, W. R.	Kaufman, M.	McComas.
Blake.	Hubner.	Leary.	

English Literature: Professor GREENE. Tuesday, 1 p. m., Thursday, 12 m., Room 11. (13).

Ballagh, W. W.	Coblens.	Janney.	Robinson.
Bansemer.	Gantz.	Kilvert.	Torrence.
Bissing.	Greenbaum.	Pindell.	Waters.
Clark, C. B.			

English Literature: Professor GREENE. Monday, 9 a. m., Tuesday, 10 a. m., Wednesday, 11 a. m., Room 11. (33).

Adams, T. S.	Graham.	Machen.	Sioussat.
Beatty.	Harden.	Magruder, E. P.	Stevens, A. R.
Binswanger.	Hendricksen.	Marine.	Sumwalt.
Bowlus.	Johnson, F. H.	McCornick.	Torsch.
Caspari.	Kenuard.	Parker, H. P.	Trippe.
Collier.	Knight, C. H.	Ritchie.	Upshur.
Diehl.	Lacy.	Savage.	Wallis.
Eldridge.	Lanahan.	Schmeckebier.	West, J. M.
Gassman.			

Rhetoric and English Composition: Professor GREENE. Monday, Tuesday, and Wednesday, 12 m., Room 11. (61).

Adams, E. M.	Gardner.	Levy, W. S.	Shaw.
Adams, H. H.	Gorsuch.	Lilly.	Shuter.
Armstrong, J. R. C.	Guggenheimer.	Longcope.	Slemons.
Baetjer.	Hancock.	Lyon, C. E.	Spencer, C.
Bartell.	Harwood.	Meyer.	Spragins.
Beckwith.	Heald.	Nelson.	Stanley.
Belknap.	Hodges, W. L.	Nyce.	Steinfeld.
Bissing.	Jenkins.	Radcliffe.	Stephens, J. C.
Blake.	Jones, A. D.	Redfield.	Uhlig.
Bowlus.	Kalb.	Reese.	Underhill.
Burt.	Kaufman, H. M.	Remsen, I., Jr.	Vocke.
Carroll, A. H.	Keidel, F. B.	Schulz.	Weglein.
Clarke, G. M.	Kershner.	Schunck.	Williams, T. D.
Davis, M. B.	Knipp.	Searles.	Wilson, H. M.
Dorsey, W. R.	Leary.	Sellhausen.	Winne.
Edmunds.			

Romance Languages. (81 Students).

Classes meet in McCoy Hall.

(*Advaneed Courses*).

French Seminary: (*Marie de France*): Professor ELLIOTT. Tuesday, 11 a. m.–1 p. m., Room 2. (4).

Armstrong, E. C.	Bonnotte.	De Haan.	Johnston, O. M.

French Dialects: Professor ELLIOTT. Monday, 12 m., Room 2. (14).

Anderson, T. M.	Brush.	Johnston, O. M.	Phillips.
Armstrong, E. C.	Cameron.	Kuersteiner.	Walker, J. C.
Baxter.	Crabb.	Nitze.	Willner.
Brownell.	Frein.		

Comparative Phonetics and French Pronunciation: Dr. RAMBEAU. Friday, 11 a. m., Room 7. (18).

Anderson, T. M.	Brownell.	Goodell.	Ogden.
Armstrong, E. C.	Brush.	Griffith.	Phillips.
Baxter.	Campbell.	Miller, C. R.	Walker, J. C.
Becker.	Crabb.	Nitze.	Willner.
Bonnotte.	Frein.		

Old French Philology: Dr. MENGER. Tuesday and Wednesday, 10 a. m., Room 2. (18).

Anderson, T. M.	Brush.	Goodell.	Ogden.
Armstrong, E. C.	Cameron.	Griffith.	Phillips.
Baxter.	Campbell.	Kuersteiner.	Walker, J. C.
Becker.	Crabb.	Nitze.	Willner.
Brownell.	Frein.		

Old French Texts: Dr. MARDEN. Monday and Wednesday, 3 p. m., Room 6. (19).

Anderson, T. M.	Campbell.	Haussmann.	Ogden.
Armstrong, E. C.	Crabb.	Kuersteiner.	Phillips.
Baxter.	Frein.	McBryde, J. M.	Walker, J. C.
Becker.	Gnodell.	Miller, C. R.	Willner.
Brownell.	Griffith.	Nitze.	

Introduction to Fable Literature: Mr. KEIDEL. Friday, 3 p. m., Room 2. (16).

Anderson, T. M.	Brush.	Goodell.	Ogden.
Armstrong, E. C.	Cameron.	Johnston, O. M.	Phillips.
Baxter.	Crabb.	Kuersteiner.	Walker, J. C.
Brownell.	Frein.	Nitze.	Willner.

Study of Rabelais' Works: Dr. RAMBEAU. Tuesday, 11 a. m., Room 7. (7). [This course is given in French].

Brownell.	Juergensen.	Ogden.	Willner.
Goodell.	Nitze.	Walker, J. C.	

Popular Latin: Professor ELLIOTT. Monday, 11 a. m., Room 2. (16).

Anderson, T. M.	Cameron.	Johnston, O. M.	Ogden.
Baxter.	Crabb.	Keidel, G. C.	Phillips.
Brownell.	Frein.	Kuersteiner.	Walker, J. C.
Brush.	Goodell.	Nitze.	Willner.

Italian Philology: Dr. MENGER. Wednesday, 11 a. m., Thursday, 10 a. m., Friday, 10 a. m., Room 2. (9).

Baxter.	Cameron.	Kuersteiner.	Ogden.
Brush.	Johnston, O. M.	Nitze.	Phillips.

Spanish Seminary: (*Poema del Cid*): Professor ELLIOTT. Thursday, 11 a. m.–1 p. m., Room 2. (3).

De Haan.	Marden.	Willner.

Spanish Literature: (*Novella Picaresca*): Mr. DE HAAN. Monday, 10 a. m., Room 8. (13).

Anderson, T. M.	Crabb.	Johnston, O. M.	Ogden.
Armstrong, E. C.	Frein.	Keidel, G. C.	Phillips.
Brush.	Goodell.	Nitze.	Willner.
Cameron.			

Spanish Epic: Dr. MARDEN. Monday, 9 a. m., Room 2. (18).

Anderson, T. M.	Crabb.	Goodell.	Phillips.
Armstrong, E. C.	Frein.	Keidel, G. C.	Willner.

Romance Club: Friday, 12 m., Room 2. (19).

Anderson, T. M.	Brush.	De Haan.	Ogden.
Armstrong, E. C.	Cameron.	Johnston, O. M.	Phillips.
Baxter.	Crabb.	Keidel, G. C.	Walker, J. C.
Bonnotte.	Frein.	Kuersteiner.	Willner.
Brownell.	Goodell.	Nitze.	

(*Undergraduate Courses.*)

Italian: Dr. MENGER. Daily, except Monday, 9 a. m., Room 2. (13).

Anderson, T. M.	Janney.	Luehs.	Schmeckebier.
Brush.	Johnson, W. H.	Nitze.	Walker, J. C.
Frein.	Kuersteiner.	Ogden.	Willner.
Goodell.			

Italian: Dr. MENGER. Thursday, 12 m., Friday, 1 p. m., Room 2. (4).

Foster, R. C.	Kaufman, M.	Oliver.	Parker, J. D.

Spanish: Mr. DE HAAN. Daily, except Friday, 4 p. m., Room 8. (10).

Baxter.	Crabb.	Kuersteiner.	Ogden.
Brownell.	Frein.	Nitze.	Phillips.
Brush.	Goodell.		

French: (*Major Course*): Dr. RAMBEAU. Daily, except Tuesday, 10 a. m., Room 7. (5).

Goodell.	Johnson, W. H.	Juergensen.	Ritchie.
Griffith.			

French: (*Minor Course A*): Dr. RAMBEAU. Daily, except Thursday, 12 m., Room 7. (18).

Adams, T. S.	Diehl.	Rosenbaum.	Torsch.
Beatty.	Harden.	Rosenheim.	Trippe.
Binswanger.	Hendrickson.	Stevens, A. R.	Wallis.
Caspari.	Kurrelmeyer.	Torrence.	Welbourn.
Clark, C. C.	Lanahan.		

French: (*Minor Course B*): Dr. MARDEN. Daily, except Thursday, 12 m., Room 6. (19).

Berger, E. W.	Chowning.	Lawson.	Sadler.
Black.	Collier.	Marine.	Upshur.
Borger, R. L.	Eldridge.	McCornick.	Watkins.
Branch, C. H. H.	Gray, G. H.	Morss.	Wilson, C. B.
Brown, G. D.	Jewell.	Poetter.	

French Conversation: Mr. BONNOTTE. (*First Section*): Wednesday, 5 p. m., Room 2. (8).

Crabb.	Johnson, W. H.	Kurrelmeyer.	Underhill.
Hazard.	Kennedy.	Longcope.	Wolff.

French Conversation: Mr. BONNOTTE. (*Second Section*): Friday, 3 p. m., Room 2. (12).

Armstrong, E. C.	Brownell.	Frein.	Juergensen.
Bansemer.	Brush.	Goodell.	Kuersteiner.
Blake.	Clark, C. C.	Griffith.	Willner.

History and Politics. (103 Students).

Classes meet in McCoy Hall.

Historical Seminary: Professor ADAMS. Alternate Fridays, 8–10 p. m., Room 25. (38).

Ballagh, J. C.	Forman.	Lewis, W. S.	Sikes, E. W.
Bentley.	Forsythe.	Lynes.	Silver.
Bole.	Foster, F. C.	McLean, F. H.	Sparks, F. E.
Boynton.	Gerdine.	Moran.	Takaki.
Bryan, A. C.	Haynes.	Paullin.	Thomas, T. P.
Callahan.	Hendren.	Reizenstein.	Ward, G. M.
Chandler.	Hunt, R. D.	Remington.	Wetzel.
Chapman.	James, B. B.	Riley.	Whealton.
Cooley.	Kennedy.	Rutter.	Zimmele.
Estes.	Latané.		

Roman Politics: Professor ADAMS. Wednesday and Thursday, 10 a. m., Room 24. (38).

Ballagh, J. C.	Foster, F. C.	Lynes.	Silver.
Bole.	Gerdine.	Moran.	Sparks, F. E.
Bryan, A. C.	Glen.	Neill.	Takaki.
Callahan.	Haynes.	Paullin.	Thomas, T. P.
Chandler.	Hendren.	Reizenstein.	Thompson, A. H.
Chapman.	Hunt, R. D.	Remington.	Ward, G. W.
Cooley.	James, B. B.	Riley.	Wetzel.
Estes.	Kennedy.	Rutter.	Whealton.
Forman.	Latané.	Sikes, E. W.	Zimmele.
Forsythe.	Lewis, W. S.		

History of the Nineteenth Century: Professor ADAMS. Friday, 10 a. m., Room 24. (42).

Ballagh, J. C.	Foster, F. C.	McLean, F. H.	Sikes, E. W.
Bole.	Glen.	Mitchell, H. D.	Silver.
Bryan, A. C.	Haynes.	Moran.	Sparks, F. E.
Burton.	Hazard.	Neill.	Takaki.
Callahan.	Hendren.	Paullin.	Thomas, T. P.
Chandler.	Hunt, R. D.	Reizenstein.	Thompson, A. H.
Chapman.	Hurst.	Remington.	Ward, G. M.
Cooley.	James, B. B.	Riley.	Ward, G. W.
Estes.	Kennedy.	Rummel.	Wetzel.
Forman.	Latané.	Rutter.	Whealton.
Forsythe.	Lynes.		

History of Civilization: Professor ADAMS. Monday and Tuesday, 11 a. m., Room 24. (30).

Adams, T. S.	Du Brul.	Luchs.	Schloegel.
Ballagh, J. C.	Eldridge.	Lynes.	Schmeckebier.
Bole.	Gerdine.	McCornick.	Sikes, E. W.
Burton.	Guthrie.	Mowbray.	Torsch.
Callahan.	Harden.	Remington.	Trippe.
Chandler.	Kennedy.	Ritchie.	Ward, G. M.
Collier.	Lewis, W. S.	Rosenbaum.	Ward, G. W.
Dorsey, W. R.	Lilly.		

Sources and Literature of English History: Professor EMMOTT. Thursday, 11 a. m., Room 20. (16).

Ballagh, J. C.	Gerdine.	Latané.	Riley.
Bole.	Hendren.	Moran.	Silver.
Chandler.	Hunt, R. D.	Paullin.	Ward.
Cooley.	James, B. B.	Reizenstein.	Whealton.

History and Principles of Roman Law and History of Roman Institutions: Professor EMMOTT. Monday and Tuesday, 9 a. m., Room 20. (38).

Bole.	Eberth.	James, B. B.	Piper.
Boynton.	Edmondson, J. H.	Kennedy.	Reizenstein.
Burton.	Forman.	Kilvert.	Remington.
Callahan.	Forsythe.	Laing.	Rummel.
Chandler.	Foster, F. C.	Latané.	Rutter.
Chapman.	Gerdine.	Lewis, W. S.	Schloegel.
Cleland.	Gill.	Lynes.	Sikes, E. W.
Crumley.	Hendren.	Neill.	Sparks, F. E.
Daniel.	Hunt, R. D.	Paullin.	Takaki.
Du Brul.	Hurst.		

English Constitutional Law and History: Professor EMMOTT. Wednesday and Friday, 12 m., Room 20. (24).

Ballagh, J. C.	Du Brul.	Kaufman, M.	Riley.
Ballagh, W. W.	Foster, R. C.	Kilvert.	Robinson, J. A.
Bansemer.	Greenbaum.	Lewis, W. S.	Rummel.
Bole.	Hubner.	Oliver.	Whealton.
Chandler.	Hurst.	Parker, J. D.	Wingert.
Coblens.	James, B. B.	Piper.	Zimmele.

Statistics: Dr. GOULD. Monday and Tuesday, 10 a. m., Room 24. (22). (Twenty-five Lectures).

Arnold, B. W.	DuBrul.	Neill.	Sparks, F. E.
Bole.	Forman.	Paullin.	Takaki.
Callahan.	Haynes.	Reizenstein.	Ward, G. M.
Chandler.	James, B. B.	Rutter.	Wetzel.
Chapman.	Johnson, E. H.	Sikes, E. W.	Zimmele.
Crane.	McLean.		

Politics: Professor WOODROW WILSON. Daily, 4 p. m., Room 24. (18). (Twenty-five Lectures).

Bole.	Foster, F. C.	Neill.	Sikes, E. W.
Callahan.	Latané.	Paullin.	Takaki.
Cleland.	Lewis, W. S.	Reizenstein.	Ward, G. M.
DuBrul.	Lynes.	Rutter.	Zimmele.
Forsythe.	McLean.		

State Constitutional History: Dr. JAMES SCHOULER. Wednesday, Friday, 11 a. m., Thursday, 12 m., Room 24. (23). (Twenty-five Lectures).

Bole.	Forman.	McLean.	Sparks, F. E.
Callahan.	Gerdine.	Moran.	Thompson, A. H.
Chandler.	Hunt, R. D.	Paullin.	Ward, G. M.
Cooley.	James, B. B.	Reizenstein.	Whealton.
DuBrul.	Kennedy.	Rutter.	Zimmele.
Estes.	Lynes.	Sikes, E. W.	

History of German Economic Theory: Dr. SHERWOOD. Wednesday, 11 a. m., Room 21. (8).

Arnold, B. W.	Boynton.	Chapman.	Takaki.
Bentley.	Bryan, A. C.	Haynes.	Wetzel.

Economic Conference: Dr. SHERWOOD. Alternate Fridays, 8–10 p. m., Room 25. (24).

Arnold, B. W.	Callahan.	Johnson, E. H.	Rutter.
Ballagh, J. C.	Chapman.	Lynes.	Sikes, E. W.
Bentley.	Du Brul.	McLean, F. H.	Takaki.
Bole.	Foster, F. C.	Moran.	Ward, G. M.
Boynton.	Haynes.	Paullin.	Wetzel.
Bryan, A. C.	James, B. B.	Reizenstein.	Zimmele.

Municipal and Private Corporations: Dr. SHERWOOD. Wednesday and Thursday, 9 a. m., Room 24. (28).

Arnold, B. W.	Chandler.	James, B. B.	Rutter.
Ballagh, J. C.	Chapman.	Lewis, W. S.	Sikes, E. W.
Bentley.	Cooley.	Lynes.	Sparks, F. E.
Bole.	Du Brul.	McLean, F. H.	Takaki.
Boynton.	Foster, F. C.	Moran.	Ward, G. M.
Bryan, A. C.	Haynes.	Reizenstein.	Ward, G. W.
Callahan.	Hunt, R. D.	Riley.	Wetzel.

Current Economic Events and Literature: Dr. SHERWOOD. Friday, 9 a. m., Room 24. (24).

Arnold, B. W.	Chapman.	McLean, F. H.	Sparks, F. E.
Bentley.	Cooley.	Moran.	Takaki.
Bole.	Du Brul.	Reizenstein.	Ward, G. M.
Boynton.	Foster, F. C.	Riley.	Ward, G. W.
Bryan, A. C.	Haynes.	Rutter.	Wetzel.
Callahan.	James, B. B.	Sikes, E. W.	Whealton.

History of Economic Theories: Dr. HOLLANDER. Tuesday, 10 a. m., Thursday, 9 a. m., Room 24. (23). (Eight Lectures in January).

Arnold, B. W.	Chapman.	McLean.	Sikes, E. W.
Bentley.	Du Brul.	Neill.	Sparks, F. E.
Bole.	Forsythe.	Paullin.	Takaki.
Boynton.	Haynes.	Reizenstein.	Ward, G. W.
Bryan, A. C.	Lewis, W. S.	Riley.	Wetzel.
Callahan.	Lynes.	Rutter.	

Development of Economic Science: Dr. SHERWOOD. Thursday and Friday, 10 a. m., Room 21. (21).

Adams, T. S.	Forrest.	Luchs.	Schmeckebier.
Clark, C. C.	Harden.	McCornick.	Shaw.
Collier.	Killmon.	Parker, H. P.	Torsch.
Dorsey, W. R.	Lilly.	Rosenbaum.	Trippe.
Du Brul.	Lefevre, A.	Schloegel.	Ward, G. M.
Eldridge.			

Practical Economic Problems: Dr. HOLLANDER. Monday and Wednesday, 10 a. m., Room 21. (22).

Adams, T. S.	Forrest.	Luchs.	Schmeckebier.
Clark, C. C.	Gray, G. H.	McCornick.	Shaw.
Collier.	Harden.	Parker, H. P.	Torsch.
Dorsey, W. R.	Killmon.	Rosenbaum.	Trippe.
Du Brul.	Lefevre, A.	Schloegel.	Ward, G. M.
Eldridge.	Lilly.		

American Institutional History: Dr. STEINER. Monday and Tuesday, 12 m., Room 20. (18).

Ballagh, W. W.	Greenbaum.	Kilvert.	Robinson.
Bansemer.	Hendren.	Oliver.	Whealton.
Cobleus.	Hubner.	Parker, J. D.	Wingert.
Estes.	Hunt, R. D.	Piper.	Zimmele.
Foster, R. C.	Kaufman, M.		

Historical Research: Dr. VINCENT. Monday and Tuesday, 11 a. m., Room 23. (8).

Forman.	Hendren.	James, B. B.	Reizenstein.
Foster, F. C.	Hunt, R. D.	McLean, F. H.	Sparks, F. E.

Historical Conference: Dr. VINCENT. Alternate Saturdays, 8 p. m. (7).

Callahan.	Forman.	Lynes.	Riley.
Chandler.	Foster, F. C.	McLean.	

Historical Journal Club: Dr. VINCENT. Wednesday, 11 a. m., Room 23. (13).

Bole.	Estes.	Hendren.	Moran.
Callahan.	Forman.	Hunt, R. D.	Riley.
Chandler.	Foster, F. C.	James, B. B.	Silver.
Cooley.			

Reformation and Puritan Revolution: Dr. VINCENT. Thursday and Friday, 11 a. m., Room 23. (21).

Adams, T. S.	Guthrie.	Mitchell, H. D.	Schmeckebier.
Callahan.	Harden.	Mowbray.	Sikes, E. W.
Collier.	Kurrelmeyer.	Ritchie.	Torsch.
Dorsey, W. R.	Lilly.	Rosenbaum.	Trippe.
Eldridge.	Luchs.	Schloegel.	Warfield, F. H.
Forman.			

Greek History: Dr. VINCENT. Monday and Wednesday, 10 a. m., Room 23. (19).

Buckler.	Jones, A. D.	Meyer.	Strobel.
Clarke, G. M.	Kalb.	Pleasants.	Thomas, J. H.
Guggenheimer.	Lehr.	Remsen, I., Jr.	Thomson, J. M.
Heald.	Levy, W. S.	Sellhausen.	Torrence.
Jenkins.	McComas.	Stanley.	

Roman History: Dr. HOLLANDER. Thursday and Friday, 10 a. m., Room 23. (19).

Buckler.	Jones, A. D.	Meyer.	Strobel.
Clarke, G. M.	Kalb.	Pleasants.	Thomas, J. H.
Guggenheimer.	Lehr.	Remsen, I., Jr.	Thomson, J. M.
Heald.	Levy, W. S.	Sellhausen.	Torrence.
Jenkins.	McComas.	Stanley.	

Philosophy. (51 Students).

Classes meet in Room 12, McCoy Hall.

History of Philosophy: (*For Graduate Students*): Professor GRIFFIN. Friday, 4 p. m. (11).

Bryan, A. C.	Ebaugh.	Kinney.	Morris.
Crane.	Griffin, N. E.	Latane.	de Saussure.
Duvall, C. R.	Hazard.	Lefevre, A.	

Psychology: Professor GRIFFIN. Daily, 11 a. m., until April 15, (Fridays, until March 15, lectures on the Structure and Functions of the Nervous System by Dr. BARKER); ***Ethics:*** Daily, after April 15; ***Outlines of the History of Philosophy:*** Tuesday, 10 a. m. (41).

Ballagh, W. W.	Gallagher.	Kilvert.	Rosenheim.
Bansemer.	Gantz.	Lefevre, A.	Rusk.
Bissing.	Gray, G. H.	McComas.	Strobel.
Black.	Greenbaum.	Morss.	Thomas, J. H.
Branch, C. H. H.	Harvey.	Oliver.	Torrence.
Brown, G. D.	Hubner.	Parker, J. D.	Umstadter.
Brown, L.	James, G. O.	Pindell.	Waters.
Buckler.	Janney.	Pleasants.	Watkins.
Clark, C. B.	Kaufman, M.	Poetter.	Whitaker.
Cohlens.	Killmon.	Robinson, J. A.	Williams, W. W.
Foster, R. C.			

Drawing. (93 Students).

Classes meet in Front Building, Howard Street.

Freehand Drawing: Mr. Whiteman. Tuesday and Wednesday, 2 to 5 p. m., Room 18. (63).

Adams, E. M.	Harwood.	Myers.	Spencer, C.
Adams, H. H.	Heald.	Naylor.	Spragins.
Armstroog, J. R. C.	Hodges, W. L.	Nyce.	Stanley.
Baetjer.	Jenkins.	Phelps.	Steinfeld.
Bartell.	Jones, A. D.	Radcliffe.	Stephens, J. C.
Beckwith.	Kaufman, H. M.	Redfield.	Thomson, J. M.
Belknap.	Keidel, F. B.	Reese.	Thomas, J. H.
Blake.	Kershner.	Ritchie.	Uhlig.
Brian, J. M.	Knipp.	Robinson.	Underhill.
Burt.	Leary.	Schulz.	Vocke.
Carroll, A. H.	Lehr.	Schunck.	Warfield, L. M.
Clarke, G. M.	Levy, W. S.	Searles.	Weglein.
Edmunds.	Lilly.	Sellhausen.	Williams, T. D.
Gardner.	Longcope.	Shaw.	Wilson, H. M.
Guggenheimer.	Lyon, C. E.	Shuter.	Winne.
Hancock.	Meyer.	Slemons.	

Special Instruction: Mr. Whiteman. Tuesday and Wednesday, 2 to 5 p. m. (2).

Gassman. Johnson, F. H.

Mechanical Drawing: (*For Students of Applied Electricity*): Mr. Geeu. Thursday and Friday, 2 to 5 p. m., Rooms 7 and 8. (28).

Brackett.	Gallaudet.	McCaskell.	Ridgely.
Branch, B. H.	Gordon.	McIver.	Rogers.
Carmichael.	Harriman.	Mullen.	Rothermel.
Corbin.	Hill, G. H.	Peirce.	Schwab.
Deutsch.	Hill, M. W.	Powell.	Singewald.
Elsenbrandt.	Hodges, G. H.	Reeder.	Waring.
Frazer, H. M.	Maynard.	Reutlinger.	Wilcox.

Commemoration Day.

The Nineteenth Anniversary of the University was commemorated by public exercises in McCoy Hall, on Friday, February 22, 1895. A report will be given in the next *Circular*.

Donovan Lectures in English Literature.

A course of ten lectures on the Caroline Donovan Foundation will be given in Levering Hall by Prof. C. T. Winchester, of Wesleyan University, beginning March 25. His general subject will be Some Representative Victorian Writers.

One Hundredth Anniversary of the Birth of George Peabody.

On February 18, the one hundredth anniversary of the birth of George Peabody, a lecture was given in Levering Hall by Rev. A. D. Mayo, of Boston, on the Influence of the Gifts of George Peabody upon the Schools of the Southern States.

Lectures on the Turnbull Memorial Foundation.

The next course of lectures on the Percy Turnbull Memorial Foundation will be devoted to the subject of Hebrew Poetry. The lecturer selected is Prof. George A. Smith, lately of Aberdeen and now of Glasgow, who is well known as a Hebrew scholar of distinction and also as one who is gifted as a writer and speaker. He has accepted the invitation of this university, but on account of personal reasons his visit to this country is postponed until the spring of next year.

Professor Tyrrell's lectures on Latin Poetry, delivered on this foundation in 1893, have just been published by Messrs. Houghton, Mifflin & Co., of Boston.

Lectures by Prof. Harris on a Recent Visit to Mount Sinai.

Professor J. Rendel Harris, Litt. Dr., University Lecturer on Palaeography in the University of Cambridge, England, will deliver two lectures in Levering Hall, Monday and Tuesday, March 4 and 5, 1895, at 5 o'clock p. m. His subjects will be A Journey to the Convent of St. Katherine on Mount Sinai, and The New Syriac Gospels from Mount Sinai.

Lectures on the History of Architecture.

Mr. J. B. Noel Wyatt, of Baltimore, has given to the university a sum sufficient to secure the delivery of a course of three lectures next winter upon *The History of Architecture*. The trustees have accepted Mr. Wyatt's offer and have arranged with three distinguished American architects, each of them to deliver one lecture. They are Prof. William R. Ware, of Columbia College; Mr. Henry Van Brunt, formerly of Boston, but now of Kansas City, and Mr. C. Howard Walker, of Boston. The subjects proposed for the three lectures are: "Classical Architecture," "Gothic Architecture" and "The Renaissance."

Lectures on Educational Subjects.

A course of six lectures on educational subjects will be given by members of the University Faculty in McCoy Hall, on Saturday mornings, at 9.10 o'clock, beginning March 9. Persons engaged in teaching in Baltimore will be admitted.

Death of Mr. H. E. Ebeling.

At a meeting of the Germanic Society of the Johns Hopkins University, held January 23, 1895, the following Minute was adopted:

"The fellow students and teachers of Mr. Henry Edward Ebeling, University Scholar in German, desire to give expression to their deep sorrow at his death, and to place on record a tribute of respect to his memory.

"As student, he won the cordial esteem and sincere friendship of his associates by the charm of his personality, the simplicity of his character, and his genuine modesty.

"As pupil, he was earnest, enthusiastic and inquiring; endowed with excellent parts, mature in judgment, eager and receptive, but with strong individual bent.

"The department of German loses in him a faithful member, an unwearied worker, a scholar of good attainments and of unusual promise."

Resolved, that the department extend its sympathy to the family of Mr. Ebeling, and that a copy of the above minute be transmitted to them.

CONTRIBUTIONS TO ASSYRIOLOGY AND COMPARATIVE SEMITIC PHILOLOGY.

(Beiträge zur Assyriologie und vergleichenden semitischen Sprachwissenschaft.)

Edited by Professor Friedrich Delitzsch of Breslau and Professor Paul Haupt of Baltimore.

Vol. III, No. 1, is now ready. It contains the following papers:

Brockelmann, C. Jbn Ĝauzi's Kitâb al-Wafâ fi fadâ'il al-Mustafâ nach der Leidener Handschrift untersucht.

Fraenkel, Siegmund. Zum sporadischen Lautwandel in den semitischen Sprachen.

Billerbeck, Adolf, und Jeremias, Alfred. Der Untergang Ninive's und die Weissagungsschrift des Nahum von Elkosch.

Two volumes of this important publication are now completed.

Volume I contains 636 pages, royal 8vo., 2 portraits and 14 plates of inscriptions. The price of Volume I is $10.00. (I, 1, $5.75—; I, 2, $4.25).

Volume II contains 645 pages, royal 8vo., 2 portraits and 83 plates of inscriptions. The price of Volume II is $10.50. (II, 1, $4.25—; II, 2, $5.00—; II, 3, $1.25.)

The volumes contain papers by W. Muss-Arnolt (1)—C. W. Belser (1)—Friedrich Delitzsch (5)—J. Flemming (3)—O. E. Hagen (1)—E. T. Harper (1)—Paul Haupt (8)—Fritz Hommel (1)—Martin Jäger (2)—J. Jeremias (1)—J. A. Knudtzon (1)—R. Kraetzschmar (2)—C. F. Lehmann (1)—B. Meissner (2)—E. Nestle (1)—F. Philippi (1)—F. Prætorius (2)—G. Steindorff (1)—S. A. Strong (1)—F. H. Weissbach (1)—R. Zehnpfund (1)—H. Zimmern (1).

Orders should be addressed to

The Johns Hopkins Press,
Baltimore, Md.

HOURS FOR LECTURES AND RECITATIONS, SECOND HALF-YEAR, 1894-95.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
A. M.	Elliptic Functions. (Craig.)	Elliptic Functions. (Craig.)	Mathematical Seminary. (Craig.)	Elliptic Functions. (Craig.)	Mathematical Seminary. (Craig.)	Chemistry: Journal Meeting.
	Analytical Chemistry. (Morse.)	Gen. Chem: Minor. (Renouf & Randall.)	Gen. Chem: Minor. (Renouf & Randall.)	Gen. Chem: Minor. (Renouf & Randall.)	Gen. Chem: Minor. (Renouf & Randall.)	Physical Seminary. (Ames.)
		Carbon Compounds. (Remsen.)	Carbon Compounds. (Remsen.)	Carbon Compounds. (Remsen.)	Carbon Compounds. (Remsen.)	
	German Seminary. (Wood.)	Chemistry: Major. (Morse.)	Chemistry: Major. (Morse.)	Chemistry: Major. (Morse.)	Chemistry: Major. (Morse.)	
	Spanish Epic. (Marden.)	Latin Composition. (Smith.)	Horace. (Smith.)	Horace. (Smith.)	Horace. (Smith.)	
9	Differential Equa. (Hulburt.)	German Seminary. (Wood.)	German Seminary. (Wood.)	Old Norse. (Wood.)	Old Norse. (Wood.)	
	Middle High German. (Learned.)	Italian. (Menger.)	Italian. (Menger.)	Italian. (Menger.)	Italian. (Menger.)	
	Palaeontology. (Clark.)	Theory of Equations. (Hulburt.)	Theory of Equations. (Hulburt.)	Theory of Equations. (Hulburt.)	Theory of Equations. (Hulburt.)	
		Electricity. (Duncan.)	Electricity. (Duncan.)	Electricity. (Duncan.)	Electricity. (Duncan.)	
	Roman Law. (Emmott.)	Palaeontology. (Clark.)	Palaeontology. (Clark.)			
		Greek Rhythms. (Miller.)	Astronomy: Adv. (Poor.)	Astronomy: Adv. (Poor.)	Astronomy: Adv. (Poor.)	
	Physiological Seminary. (Howell.)	Roman Law. (Emmott.)	Municipal Corporations. (Sherwood.)	Municipal Corporations. (Sherwood.)	Current Economic Lit. (Sherwood.)	
	English Literature. (Greene.)	Zoology: Elem. (Brooks.)	Zoology: Elem. (Brooks.)	Zoology: Elem. (Brooks.)	Zoology: Elem. (Brooks.)	
				Botany. (Lotsy.) (9-12.)	Botany. (Lotsy.) (9-12.)	
				Economic Theories. (Hollander.)		
	Greek Seminary. (Gildersleeve.)	Greek Comedy. (Gildersleeve.)	Greek Seminary. (Gildersleeve.)	Greek Syntax. (Gildersleeve.)	Greek Tragedy. (Gildersleeve.)	
	Electricity and Magnetism. (Rowland.)	Electricity and Magnetism. (Rowland.)		Electricity and Magnetism. (Rowland.)	Electricity and Magnetism. (Rowland.)	
			Roman Politics. (Adams.)	Roman Politics. (Adams.)	Nineteenth Century. (Adams.)	
	Physics: Minor. (Ames.)		Physics: Minor. (Ames.)	Physics: Minor. (Ames.)	Physics: Minor. (Ames.)	
	Osteology. (Andrews.)		Osteology. (Andrews.)	General Biology. (Andrews.)	General Biology. (Andrews.)	
	Lines on Surfaces. (Craig.)	Lines on Surfaces. (Craig.)		Lines on Surfaces. (Craig.)		
	Twisted Curves. (Hulburt.)	Twisted Curves. (Hulburt.)	Twisted Curves. (Hulburt.)	Plautus and Terence. (Warren.)	Plautus and Terence. (Warren.)	
	German: Major. (Vos.)	Old High German. (Learned.)	German: Major. (Wood.)	German: Major. (Learned.)	German: Major. (Wood.)	
10	Latin Composition. (Smith.)		Plautus and Terence. (Warren.)			
	French: Major. (Rambeau.)	English Literature. (Greene.)	French: Major. (Rambeau.)	French: Major. (Rambeau.)	French: Major. (Rambeau.)	
	Physiological Journal Club. (Howell.)		Electrical Seminary.	Theoretical Astronomy. (Poor.)	Theoretical Astronomy. (Poor.)	
	Spanish Literature. (De Haan.)	Old French Philology. (Menger.)	Old French Philology. (Menger.)	Italian Philology. (Menger.)		
	Greek History. (Vincent.)		Greek History. (Vincent.)	Economic Science. (Sherwood.)	Economic Science. (Sherwood.)	
	Economic Problems. (Hollander.)	Economic Theories. (Hollander.)	Economic Problems. (Hollander.)	Roman History. (Hollander.)	Roman History. (Hollander.)	
	Statistics. (Gould.)	Statistics. (Gould.)		Historical German Gram. (Wood.)	Assyrian Exercises. (Johnston.)	
	German: Minor. (Learned.)	German: Minor. (Learned.)		German: Minor. (Wood & Learned.)	German: Minor. (Learned.)	
	Theory of Functions. (Franklin.)	Theory of Functions. (Franklin.)	Theory of Invariants. (Franklin.)	Theory of Invariants. (Franklin.)		
	English Literature. (Browne.)	Gothic. (Wood.)	Gothic. (Wood.)	English: Major. (Browne.)	English: Major. (Browne.)	
	Civilization. (Adams.)	Civilization. (Adams.)	English Literature. (Greene.)			
		Latin Seminary. (Warren.)	Petronius, etc. (Warren.)	Hist. Latin Grammar. (Warren.)	Latin Seminary. (Warren.)	
	Psychology and Ethics. (Griffin.)	Psychology and Ethics. (Griffin.)	Psychology and Ethics. (Griffin.)	Psychology and Ethics. (Griffin.)	Psychology and Ethics. (Griffin.)	
	German: Minor B. (Vos.)	German: Minor B. (Vos.)		German: Minor B. (Vos.)	German: Minor B. (Vos.)	
	Historical Research. (Vincent.)	Historical Research. (Vincent.)	Historical Jour. Club. (Vincent.)	Reformation. (Vincent.)	Reformation. (Vincent.)	
11			Physics: Jour. Meet. (Rowland & Ames.)	Hydrodynamics and Sound. (Ames.)	Hydrodynamics and Sound. (Ames.)	
	Machine Design. (Geer.)	Machine Design. (Geer.)		Steam Engineering. (Geer.)	Steam Engineering. (Geer.)	
	Popular Latin. (Elliott.)	French Seminary. (Elliott.)	Italian Philology. (Menger.)	Spanish Seminary. (Elliott.)	Comparative Phonetics. (Rambeau.)	
	Petrography. (Mathews.)	Petrography. (Mathews.)	Petrography. (Mathews.)	Animal Physiology. (Howell.)	Animal Physiology. (Howell.)	
	Steam Engineering. (Hering.)	Steam Engineering. (Hering.)	German Econom. Theory. (Sherwood.)	Electrical Measurements. (Hering.)	Electrical Measurements. (Hering.)	
		Rabelais. (Rambeau.)	Constitutional History. (Schouler.)	English History. (Emmott.)	Constitutional History. (Schouler.)	
			Celestial Mechanics. (Chessin.)	Celestial Mechanics. (Chessin.)	Celestial Mechanics. (Chessin.)	
			Hebrew Exercises. (Johnston.)		Arabic Exercises. (Johnston.)	
M.	Physics: Major. (Ames.)	Physics: Major. (Ames.)	Physics: Major. (Ames.)		Physics: Major. (Ames.)	
	Greek: Major. (Spieker.)	Greek: Major. (Spieker.)	Greek: Major. (Spieker.)	Italian. (Menger.)	Greek: Major. (Spieker.)	
	French: Minor. (Rambeau.)	French: Minor. (Rambeau.)	French: Minor. (Rambeau.)	Historical German. (Vos.)	French: Minor. (Rambeau.)	
	Anglo-Saxon. (Bright.)	Romanic Elements. (Bright & Sykes.)	Anglo-Saxon. (Bright.)	Interpretation of Texts. (Bright.)		
	American History. (Steiner.)	American History. (Steiner.)	English Constitution. (Emmott.)	Constitutional History. (Schouler.)	English Constitution. (Emmott.)	
	Rhetoric. (Greene.)	Rhetoric. (Greene.)	Rhetoric. (Greene.)	English Literature. (Greeno.)		
12	General Geology. (Clark & Mathews.)	Geology. (Gilbert and Willis.)	General Geology. (Clark & Mathews.)	Geology. (Gilbert and Willis.)	Sanskrit: Elem. (Bloomfield & Stratton.)	Geological Journal Club.
	Sanskrit. (Stratton.)	Zend. (Bloomfield.)	Old High German. (Learned.)	Descriptive Astronomy. (Poor.)		
			Latin Journal Club. (Warren.)	Tacitus. (Smith.)	Romance Club. (Elliott.)	
	French Dialects. (Elliott.)	French Seminary. (Elliott.)	(Alternate Wednesdays.)	Spanish Seminary. (Elliott.)	Anal. Geom. (Roszel.)	
				Differential Equations. (Hulburt.)	Zoological Seminary. (Brooks.)	
	Morphological Journal Club. (Brooks.)	Botany. (Lotsy.)	Botany. (Lotsy.)	Botany. (Lotsy.)	French: Minor B. (Marden.)	
	French: Minor B. (Marden.)	French: Minor B. (Marden.)	French: Minor B. (Marden.)			
P. M.	Calculus. (Franklin.)	Calculus. (Franklin.)	Calculus. (Franklin.)	Calculus. (Franklin.)		
		English Literature. (Greene.)			Descriptive Astronomy. (Poor.)	
	English: Minor. (Browne.)	English: Minor. (Browne.)	English: Minor. (Browne.)	English: Minor. (Browne.)	Italian. (Menger.)	
1	Greek: Minor. (Spieker.)	Greek: Minor. (Spieker.)	Greek: Minor. (Spieker.)	Greek: Minor. (Spieker.)		
		Hebrew: Elem. (Johnston.)			Tacitus. (Smith.)	
	Zoology: Adv. (Brooks.)	Zoology: Adv. (Brooks.)	Zoology: Adv. (Brooks.)	Botany. (Lotsy.) (2-5.)	Botany. (Lotsy.) (2-5.)	
2	Anal. Geom. (Roszel.)	Drawing. (Whiteman.)	Drawing. (Whiteman.)	Mech. Drawing. (Geer.)	Mech. Drawing. (Geer.)	
	Arabic. (Johnston.)		Anal. Geom. (Roszel.)			
					Hebrew: Elem. (Johnston.)	
	Hebrew: Adv. (Haupt.)		Assyrian: Adv. (Haupt.)		Arabic. (Johnston.)	
3		English Seminary. (Bright.)		English Seminary. (Bright.)	Modern Dutch. (Vos.)	
		Drawing. (Whiteman.)	Drawing. (Whiteman.)	Mech. Drawing. (Geer.)	Mech. Drawing. (Geer.)	
	Old French Texts. (Marden.)		Old French Texts. (Marden.)		French Fable Literature. (Keidel.)	
					French Conversation. (Bonnotte.)	
	Comparative Philol. (Bloomfield.)	Sanskrit: Elem. (Bloomfield & Stratton.)	Comparative Grammar. (Bloomfield.)	Vedic Seminary. (Bloomfield.)		
	Hebrew: Adv. (Haupt.)		Arabic. (Haupt.)		Assyrian: Elem. (Johnston.)	
		English Seminary. (Bright.)	English Philology. (Bright.)	English Seminary. (Bright.)	History of Philosophy. (Griffin.)	
4	Modern Dutch. (Vos.)	Drawing. (Whiteman.)	Drawing. (Whiteman.)	Mech. Drawing. (Geer.)	Mech. Drawing. (Geer.)	
		French Drama. (Rambeau.)	Hebrew Conversation. (Levias.)			
			Partial Diff. Equa. (Chessin.)	Partial Diff. Equa. (Chessin.)	Partial Diff. Equa. (Chessin.)	
	Spanish. (De Haan.)	Spanish. (De Haan.)	Spanish. (De Haan.)	Spanish. (De Haan.)		
	Politics. (Wilson.)	Politics. (Wilson.)	Politics. (Wilson.)	Politics. (Wilson.)	Politics. (Wilson.)	
			Electro-Chemistry. (Jones.)	Electro-Chemistry. (Jones.)		
	Historical German. (Vos.)		Scientific German. (Vos.)		Scientific German. (Vos.)	
	Hebrew Composition. (Haupt.)	Geography of Palestine. (Johnston.)	Post-Biblical Hebrew. (Levias.)		Seminary of Hist. and Politics. (Adams.)	
	Arabic Composition. (Haupt.) (5.30.)	Assyrian Sem'y. (Haupt.) (7.30 p. m.)	Astronomical Seminary. (Poor.)		(8 p. m. Alternate Fridays.)	
			French Conversation. (Bonnotte.)		Economic Conference. (Sherwood.)	
5			German Conversation. (A. B. Faust.)	German Conversation. (A. B. Faust.)	(8 p. m. Alternate Fridays.)	Historical Conference. (Vincent.)
					Germanic Society. (Wood.) (8 p. m. Alternate Fridays.)	(8 p. m. Alternate Saturdays.)
					English Journal Meeting. (Bright.) (8 p. m. Alternate Fridays.)	

DEATH OF PROFESSOR CAYLEY.

Professor ARTHUR CAYLEY, Sadlerian Professor of Pure Mathematics in the University of Cambridge, died on January 26, 1895, in the 74th year of his age. Sketches of his life are given in the *Athenæum* and the *Academy* of February 2, and other London papers of that date. Portraits of Professor Cayley may be seen in Vol. XIII of the *American Journal of Mathematics* and in the collected edition of his works in the University library. An account of his residence in Baltimore, in 1882, is given in the following communication of Professor Craig.

January 30, 1895.

DEAR MR. GILMAN:—

In our conversation yesterday you suggested that, in view of the recent death of Professor Cayley, it would be of interest to recall some of the circumstances of his connection with this University. The principal matter of interest was the simple fact of his being here; the fact that so great a mathematician and so learned a man (for Cayley was eminent in other fields than mathematics) honored us with his presence and services for several months. That fact, I think, was appreciated by all connected with the University—certainly by all who came into personal contact with him. His services as a lecturer and teacher could naturally be appreciated by but few; I am quite sure, however, that those who made good use of their opportunities for obtaining aid and advice from him will never forget his sojourn here.

Professor Cayley came here by invitation of the Trustees in December, 1881, and remained until near the end of the academic year, 1881–82. The suggestion that he be invited to come was made by Professor Sylvester and enthusiastically urged by him. The subjects on which Cayley was to lecture were left to his election. I find in the *Circular* for December, 1881, the announcement: "Professor Cayley will lecture twice weekly, after January 1, on Analytical Geometry and the Abelian and Theta Functions. He will also take part in the Mathematical Seminary and will guide the personal inquiries of advanced students." His lectures were confined to the Abelian Integrals, and really, for the most part, consisted of an entirely original investigation of integrals of the third kind. The lectures were attended by Professor Sylvester and the other mathematical instructors, by the Fellows in Mathematics and certain graduate students. At the beginning of the course there were fifteen hearers; in a few weeks this number was reduced to five—four of whom were the instructors in mathematics. A little later, I think, these five attended solely from a sense of duty, as, with the exception of Professor Sylvester, I doubt if any of us could follow Cayley about that time. I *know* that I could not. The greatest use that Cayley was to the mathematical department was in his capacity as an adviser. One might go to him with a difficulty in any subject, not merely in the subject which he was lecturing on, and be assured of his sympathetic interest. No one ever went to him for assistance and came away dissatisfied. That his interest in our difficulties was a real one was perfectly manifest, and indeed was proved in many cases by his taking the trouble to write and subsequently publish brief papers, the subjects of which had been suggested to him by some student's difficulties. He had his study in a small room back of Hopkins Hall where he was to be found any day between nine and five. He had no stated consultation hour, but was ready at any time to render assistance to the perplexed student.

I find, on looking over the *Circulars*, that there was not a meeting of the Mathematical Society during his residence here at which he did not communicate something of interest and importance. He was also a regular attendant at the meetings of the Scientific Association, and contributed several valuable papers which were published in part in the *Circulars*. Indeed, about this time, and for two years after his return to England, the mathematical sections of the *Circulars* abound in notes by Cayley and in extracts from letters addressed by him to Professor Sylvester and to Dr. Franklin. I have, myself, a large number of letters from him, extending over a period of about twelve years. I do not find anything in them, however, that it would be of interest to reproduce here, though they are of interest to a mathematician as giving a pretty fair idea of Cayley's work during this period. Most of the letters refer, in part at least, to various memoirs that he was preparing for the *American Journal of Mathematics*. He was a contributor to the *Journal* from its very beginning until 1893, and always manifested a deep interest in its success. The first fifteen volumes of the *Journal* contain twenty-six papers by him on a great diversity of subjects. Two of these memoirs contain, with additional developments, reproductions of two courses of lectures, one, "On the Abelian and Theta Functions," delivered here, and one, "On Surfaces with Plane or Spherical Curves of Curvature," delivered at Cambridge in 1888. In a letter I received from him in March, 1888, he says, speaking of his lectures for that year, "One of my subjects was Bonnet's and Serret's Theory of the Surfaces with Plane or Spherical Curves of Curvature. I think I can make you an interesting paper,—and I will set about it immediately, now that I am rather more at leisure,—reproducing this in a condensed form and with some new developments." The paper is really one of great interest and value, and has attracted much attention,—it appeared in Volume XI of the *Journal*. Cayley's productivity was enormous. I do not know how many papers he has published, but I remember looking the matter up some twelve or thirteen years ago, and I think the number at that time was about 800,—it is certainly over a thousand now.

As you are aware, the University of Cambridge is publishing his *Collected Papers;* seven large quarto volumes have already appeared and I believe the intention was to publish three more. Even these will, I think, hardly contain all that he has written. It is interesting to note that one of the last things, if not the very last thing, that he published appears in the *Bulletin of the American Mathematical Society* for the current month (January, 1895).

Cayley's mathematical work has extended over rather more than half a century,—the first papers in Volume I of the *Collected Papers* having originally appeared in the *Cambridge Mathematical Journal* for 1841. There is scarcely a subject in the entire field of pure and applied mathematics, including celestial mechanics, to which he has not contributed highly important investigations, though he will probably be best remembered for his researches in the so-called Modern Algebra and in the theories of curves and surfaces. He and Sylvester were the founders of the Modern Algebra, or Algebra of Forms, and indeed it owes most of its development to these two English mathematicians and their disciples. Another method of treatment is largely used in Germany, but even that, in its inception, is, I believe, due to Cayley and Sylvester.

It would be easy enough to write for hours on what Cayley has done for mathematical science, but I will not venture to do so. You, of course, have seen the two portraits of him in Volumes VI and VII of the *Collected Papers*. The one in Volume VI is from an oil painting presented to Trinity College in 1874 by the subscribers, which now hangs in the hall of that College. The one in Volume VII is a photograph from a pencil sketch made by the same artist, Mr. Lowes Dickenson, in 1893. Another portrait was published in *Nature* some years ago, and was reproduced in Volume XIII, 1891, of the *American Journal of Mathematics*.

A photograph of a size suitable for framing and for placing in a Lecture room was taken in 1882, while Professor Cayley was here, and presented to the Johns Hopkins University by the photographer, Mr. J. S. Cummins.

In conclusion I will quote a few lines from the *Circular* for August, 1882:

"The annexed extract from Pliny, Epist. i. 22, has been pointed out by Professor Morris as affording a striking parallel to the remarks made by one of the speakers on the occasion of the public reception given to Professor Cayley, at the Johns Hopkins University, in the month of February, last. They occur in a letter addressed by Pliny to his friend, Catilius Severus, lamenting the illness of Titius Aristo, who (like our eminent guest) was a distinguished jurist whose name frequently occurs in the Digest.

"It may not be generally known that some of Professor Cayley's conveyancing drafts have been accepted as models by the legal profession, and will be found printed as such in *Davidson's Precedents*.

"Referring to Titius Aristo, Pliny writes: *Nihil est quod discere velis, quod ille docere non possit; mihi certe, quotiens aliquid abditum quaero, ille thesaurus est.*"

T. CRAIG.

PROCEEDINGS OF SOCIETIES.

Scientific Association.

January 15, 1895.—Special business meeting. Professor Remsen in the chair.

January 17.—One hundred and eighteenth regular meeting. Professor Remsen in the chair.

Notes on Lunar Photography, by WM. H. PICKERING.

Recent Ideas as to the Structure and Physiology of the Nerve Cells of the Brain and Cord, by W. H. HOWELL.

February 14.—Extra meeting. Professor Remsen in the chair.

The Work of Lord Rayleigh and Professor Ramsey on Argon, the recently discovered Constituent of the Atmosphere, by IRA REMSEN.

Philological Association.

January 18.—One hundred and thirty-ninth regular meeting. Professor Gildersleeve in the chair. Fifty-six members present.

Plan and Composition of "Simplicissimus," by H. WOOD.

The Story of the Alban King who was Struck by Lightning, by K. F. SMITH.

February 15.—One hundred and fortieth regular meeting. Professor Gildersleeve in the chair. Forty-eight members present.

The Crónica de los Rimos Antiguos, by C. C. MARDEN.

Shakspeare's First Principles of Art, by Professor L. A. SHERMAN, of the University of Nebraska; read by J. W. BRIGHT.

Historical and Political Science Association.

December 21, 1894.

Review of A. P. Dennis's "Catholic and Puritan Settlers in Maryland," by J. H. LATANÉ.

Recent Works on Municipal Reform: Proceedings of the Conference in Philadelphia for Good City Government; Alfred R. Conkling's "City Government in the United States;" and Henry Chamberlain's "The Boss," by J. H. HOLLANDER.

Progress of the Parkin Street Settlement, by B. C. STEINER.

January 18, 1895.

The Genesis of California's First Constitution, by R. D. HUNT.

Review of Mallock's "Labor and the Popular Welfare"; and Göehre's "Three Months in a Workshop," by J. H. HOLLANDER.

Albert Shaw's Treatise on "Municipal Government in Great Britain," by JOHN HAYNES.

February 1.

The Indians of Virginia, by S. R. HENDREN.

Horne Tooke as a Publicist, by S. E. FORMAN.

The Historical Work of Professor J. R Seeley, by G. B. LYNES.

February 15.

Historical Methods of Record before the Use of Writing, by J. A. BOLE.

Refutation of Alleged Japanese Atrocities, by M. TAKAKI.

Recent Accounts of the War in China, by M. REIZENSTEIN.

Claudio Jannet's Historical and Economic Writings, by E. F. DU BRUL.

Catholic Views of Social Problems, by C. P. NEILL.

Carroll D. Wright's Idea of Government Control of Railroads, by J. M. CALLAHAN.

Mathematical Seminary.

Directed by Professor CRAIG.

January Meetings.—In charge of Mr. H. A. SAYRE.

January 4 *and* 9.—Some Properties of Functions arising from the Inversion of Integrals of the Solutions of Linear Differential Equations, by C. R. DUVALL.

January 16.—Curvature and Torsion of Twisted Curves, by A. H. WILSON.

January 23.—On Line Congruences, by E. H. JOHNSON.

January 25.—On Double Theta-Functions, by J. S. MORRIS.

January 30.—On Line Congruences, continued, by E. H. JOHNSON.

February Meetings.—In charge of J. S. MORRIS.

February 1, 6, 13 *and* 20.—On Double Theta-Functions, continued, by J. S. MORRIS.

Physical Seminary.

The Physical Seminary has met regularly on Saturday mornings for the study and discussion of special topics in Electro-chemistry.

Naturalists' Field Club.

February 12.

The Conjugation of Earth Worms and A Parasite on Crayfish, by E. A. ANDREWS.

Aspidium simulatum Day., by C. E. WATERS.

Young Men's Christian Association.

January 15.—Annual Meeting. Reports from Officers and Committees.

January 17–20.—Association represented at State Convention at Cumberland.

January 22.—Reports of Delegates to State Convention.

January 31.—Day of Prayer for Colleges. Association Meeting.

February 5.—Annual Election. The following officers were elected:—*President*, M. D. LEARNED; *First Vice-President*, G. O. SMITH; *Second Vice-President*, A. D. GANIZ; *Treasurer*, C. E. COMSTOCK; *Recording Secretary*, J. M. SLEMONS; *Executive Council:* G. H. EMMOTT, J. C. OLSON, M. L. BARR, C. E. DIEHL.

A meeting of the BALTIMORE SOCIETY OF THE ARCHÆOLOGICAL INSTITUTE OF AMERICA was held in McCoy Hall, January 31.

Communications were made as follows:—

Report of the last meeting of the Council, and of the recent General Meeting of the Association in Philadelphia.

Notices of two distinguished archæologists who have died recently—Professor Merriam, of Columbia College and of the American School in Athens, and Sir Charles Newton, of the British Museum.

On a brick from the site of ancient Babylon (the gift of W. W. Spence, Esq.),—by Dr. C. Johnston.

Letter from Professor Tarbell, of the University of Chicago, on the remarkable collection of vases deposited in the Peabody Institute and belonging to this Society.

Professor Tarbell wrote:—

"The small collection of Greek vases in the Peabody Institute in Baltimore is one of extraordinary interest and value. The pieces are chiefly Attic *cylices* belonging, with one exception, to the early (or so-called "severe") red-figured style, and dating, therefore, from (say) 530 to 470 B. C. This most interesting period, when vase-painters, like other artists, were emancipating themselves from the stiffness and awkwardness of early sixth century art and were making rapid progress toward a complete mastery of their resources, receives in this collection ample illustration. Several of the vases are signed by their makers, a fact which greatly enhances their interest, while others are in the style of well-known vase-painters. Then the subjects of several of the designs are very unusual, if not unique, and are thus of importance to the student of Greek life. I may mention the signed *cylix* of Phintras, representing a young man making purchases in a potter's shop, and the one representing a man whipping a top." . . . .

On an Indian bowl, and on the site of an Indian quarry in Maryland,—by Miss E. T. King.

An exhibition of some original drawings of old churches in Maryland,—by Miss Stewart.

On recent accessions to the casts exhibited in the Metropolitan Museum in New York,—communicated by R. W. DeForest, Esq., of New York.

Letter on the Armour expedition to Yucatan, by Professor Marquand.

He wrote (in part) of the archæological studies in Yucatan of Mr. F. H. Thompson, who, through the generous assistance of Mr. A. V. Armour, has been enabled to follow this work for several years. Mr. Thompson has visited a larger number of ruins than Stephens, Charnay, Le Plongeon, or other explorers, and has made careful measurements, taken photographs and casts of sculptures, etc. He is now engaged at the important ruins of Chichen-Itza. Professor Marquand was in Yucatan for about a month. The expedition was in the nature of a general survey without specialization. It visited in the eastern part of the Peninsula, the island of Mugeres, el Meco (on the mainland), and the islands of Cancum and Cozumel. The ruins here are smaller and less decorated than those at Uxmal and Chichen-Itza.

The most important groups of ruins in Yucatan are those at Uxmal and Chichen-Itza. The ruins even in these places are buried in trees and overgrown with bushes, but the most important can be visited. Although the property of the Government, the monuments are not cared for and are being much injured by the overgrowth of rank foliage and by the establishment of lime-kilns in their neighborhood—the finest stones being abstracted for use in making cement. A number of the buildings at these places have been carefully reproduced by Catherwood's drawings for Stephens and by photographs which are more or less accessible—but the number of the buildings and their extent and general arrangement have not yet been made out so as to exhibit sufficiently the architectural productiveness of the Maya race. Professor Holmes will publish the results of his study of these ruins in the Reports of the Field Columbian Museum of Chicago.

Dr. Marquand says that the January climate in Yucatan is delightful and the country beautiful and varied in color. It is inhabited by the Mestizos (half Spanish, half Indian). Their dwellings, costumes and modes of life are most interesting.

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